REPORT RESUMES

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INTERRELATIONSHIPS AMONG TEACHERS' EXPERIMENTAL ATTITUDE, PUPILS' EXPERIMENTAL ATTITUDE, CREATIVENESS SOCIOMETRIC STRUCTURE, AND THEIR SCHOOL ATTITUDE.

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THE RELATIONSHIP OF DEWEY'S EXPERIMENTALISM TO CREATIVITY, SCHOOL ATTITUDE, AND SOCIOMETRIC STATUS WAS STUDIED. DURING PHASE ONE, FOURTH-SIXTH GRADE TEACHERS (141) WERE ADMINISTERED THE EXPERIMENTALISM SCALE. A TRUNCATION WAS APPLIED AT EACH END OF THE TEACHERS' SCORE CONTINUUM ON THE BASIS OF A T-TEST. DURING PHASE TWO, PUPILS TAUGHT BY THE TEACHERS WHOSE SCORES WERE WITHIN THE TRUNCATED SCOPE AT BOTH EXTREMES OF THE SCORE SPECTRUM, WERE ADMINISTERED THE PUPIL SITUATIONAL INVENTORY DEVELOPED FOR THE STUDY. DURING PHASE THREE THE INVENTORY WAS ADMINISTERED TO THE PUPILS IN CONJUNCTION WITH CREATIVE THINKING, PEER CHOICE RATING, AND SCHOOL ATTITUDE SCALE. THE TOTAL PUPIL POPULATION CONSISTED OF 372 SUBJECTS WITH 207 IN THE LOW EXPERIMENTAL GROUP AND 165 IN THE HIGH EXPERIMENTAL GROUP. RESULTS INDICATED THAT PUPILS TAUGHT BY THE HIGH EXPERIMENTAL TEACHERS PERCEIVED THEIR TEACHERS AS BEING MORE EXPERIMENTAL IN ATTITUDES IN TERMS OF DEWEY'S EXPERIMENTALISM THAN DID THOSE IN THE LOW GROUP. DISCUSSION WAS ALSO PRESENTED OF RESULTS IN SUCH AREAS AS (1) DROPOUT PROBLEMS, (2) SCHOOL CURRICULUM, (3) TEACHER COMPETENCE, AND (4) SOCIAL ACCEPTABILITY. FURTHER IMPLICATIONS WERE SUGGESTED TO PROBE DEWEY'S PHILOSOPHY OF EXPERIMENTALISM FROM OTHER AVENUES. (RS)

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INTERRELATIONSHIPS AMONG TEACHERS' EXPERIMENTAL ATTITUDE, PUPILS' EXPERIMENTAL ATTITUDE, CREATIVENESS SOCIOMETRIC STRUCTURE, AND THEIR SCHOOL ATTITUDE.

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CHAPTER I

INTRODUCTION

This study could be attributed for its root to the following three sources: (a) Brown's investigation into the relationship of Dewey's Experimentalism to classroom practices[1], (b) the author's study of pupils' perceptions of teachers[2], and (c) the author's review of the relevant works of John Dewey.[3]

The primary assumption of this investigation was that John Dewey's philosophy of Experimentalism has shaped considerably American educational beliefs and practices for a period of several decades. As a citation to undergird this assumption, Bode states emphatically:

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[1] Bob B. Brown, The Relationship of Experimentalism to Classroom Practices. (Unpublished Ph.D. dissertation, the University of Wisconsin, 1962).

[2] George S.C. Cheong and M. Vere DeVault, "Pupils' Perceptions of Teachers." (Accepted to be published in the Journal of Educational Research.)

[3] John Dewey, Democracy and Education, (New York: The Macmillan Company, 1916).

________ , Experience and Education, (New York: The Macmillan Company, 1938).

________ , The Quest for Certainty, (New York: Minton, Balch & Company, 1929).

R.B. Winn, (ed.) John Dewey: Dictionary of Education, (New York: Philosophical Library, 1959).

M.S. Dworkin, (ed.) Dewey on Education, (New York: Columbia University, Teachers College, 1959).

> It is conceded on all hands that John Dewey is our outstanding educational philosopher; his influence on American education has been immense .... Dewey's philosophy can scarcely fail to become a landmark in the intellectual development of our Western culture.
>
> Dewey, as the preeminent philosopher of scientific method and and democracy, ranks with foremost thinkers of the past. Even when this is granted, it hardly explains how it happens that he has exerted so profound an influence on American education.[4]

Woodring points out that teacher education institutions have attempted to acquaint their prospective teachers with Dewey's philosophy by offering courses in Dewey's Experimentalism. Thereby teachers' educational practices supposedly have been influenced, even dominated by his school of thought for several decades.[5] Moreover, John Dewey has been regarded as the most significant influence in the philosophy of education in America for almost fifty years.[6]

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[4] B.H. Bode, "Pragmatism in Education," _Education Digest_, Vol.15, (February, 1950), pp. 5-8.

[5] Paul Woodring, _A Fourth of a Nation_, (New York: McGraw-Hill Book Company, 1957).

[6] H.N. Rivlin, (ed.) _Encyclopedia of Modern Education_, (The Philosophical Library of New York City, 1943).

The central concern of this study was to probe the extent to which Dewey's Experimentalism was related to these three variables, namely, creativity, school attitude, and sociometric status. The major task of this concern was to develop an instrument for measuring experimental attitude in terms of Dewey's philosophy of Experimentalism. Meanwhile, there were two dimensions to this concern. One dimension was to examine the effect of the high experimental teachers and that of the low experimental teachers upon their respective 4th-6th grade pupils after one semester's exposure on: experimental attitude* (obtained by their indications of the kinds of teachers these youngsters would like to have), creativity, school attitude, sociometric status, teacher perception*(obtained by pupils' indications of the kinds of teachers they perceived they had), and teacher discrepancy* (the absolute difference, if any, between the kinds of teachers these pupils would like to have and the kinds of teachers pupils perceived they had). The high experimental teachers and the low experimental teachers were based upon their scores on the Experimentalism Scale, which served as the foundation for the six "between-groups" hypotheses. Pupils when taught by the high experimental teachers were designated as the high experimental group in this study; pupils when taught by the low experimental teachers constituted the low experimental group. Another dimension of the investigation was to probe the relation between any two the above-named variables by amalgamating the low experimental group and the high experimental group.

Specifically, this study investigated the following hypotheses and questions.

---

*It means that Dewey's philosophy of Experimentalism was used as the frame of reference.

A. "Between-groups" Hypotheses

A.1. The high experimental group would score higher on experimental attitude than the low experimental group after one semester's exposure to their respective teachers.

A.2. The high experimental group would score higher on creativity than the low experimental group at the end of the study.

A.3. The high experimental group would be more positive in their attitudes toward school than the low experimental group at the end of this investigation.

A.4. The high experimental group would attain a higher score on sociometric status than the low experimental group at the close of this study.

A.5. The high experimental group would perceive their teachers more experimental in attitudes in terms of Dewey's Experimentalism than the low experimental group at the end of this experimentation.

A.6. There would be difference between the high experimental group and the low experimental group on teacher discrepancy at the close of this study.

B. "Combined group" Questions

B.1. Experimental Attitude

B.1.1. Would pupils' experimental attitude be correlated with their teacher discrepancy?

B.1.2. To what degree would pupils' experimental attitude be related to their creativity?

B.1.3. What would be the degree of relation between pupils' experimental attitude and their school attitude?

B.1.4. What degree of correlation existed between pupils' experimental attitude and their sociometric status?

B.1.5. What would be the degree of correlation between pupils' experimental attitude and their teacher perception?

B.2. Teacher Discrepancy

B.2.1. Would there be any relation between pupils' teacher discrepancy and their creativity?

B.2.2. To what extent was pupils' teacher discrepancy related to their attitudes toward school?

B.2.3. Was pupils' teacher discrepancy correlated with their sociometric status?

B.2.4. What degree of relation existed between pupils' teacher discrepancy and their teacher perception?

B.3. Teacher Perception

B.3.1. To what extent was pupils' teacher perception correlated with their creativity?

B.3.2. What was the degree of relation between pupils' teacher perception and their school attitude?

B.3.3. Was there any relation between pupils' teacher perception and their sociometric status?

B.4. Creativity

B.4.1. To what degree was pupils' creativity associated with their school attijtude?

B.4.2. What degree of relation existed between pupils' creativity and their sociometric status?

B.5. School Attitude

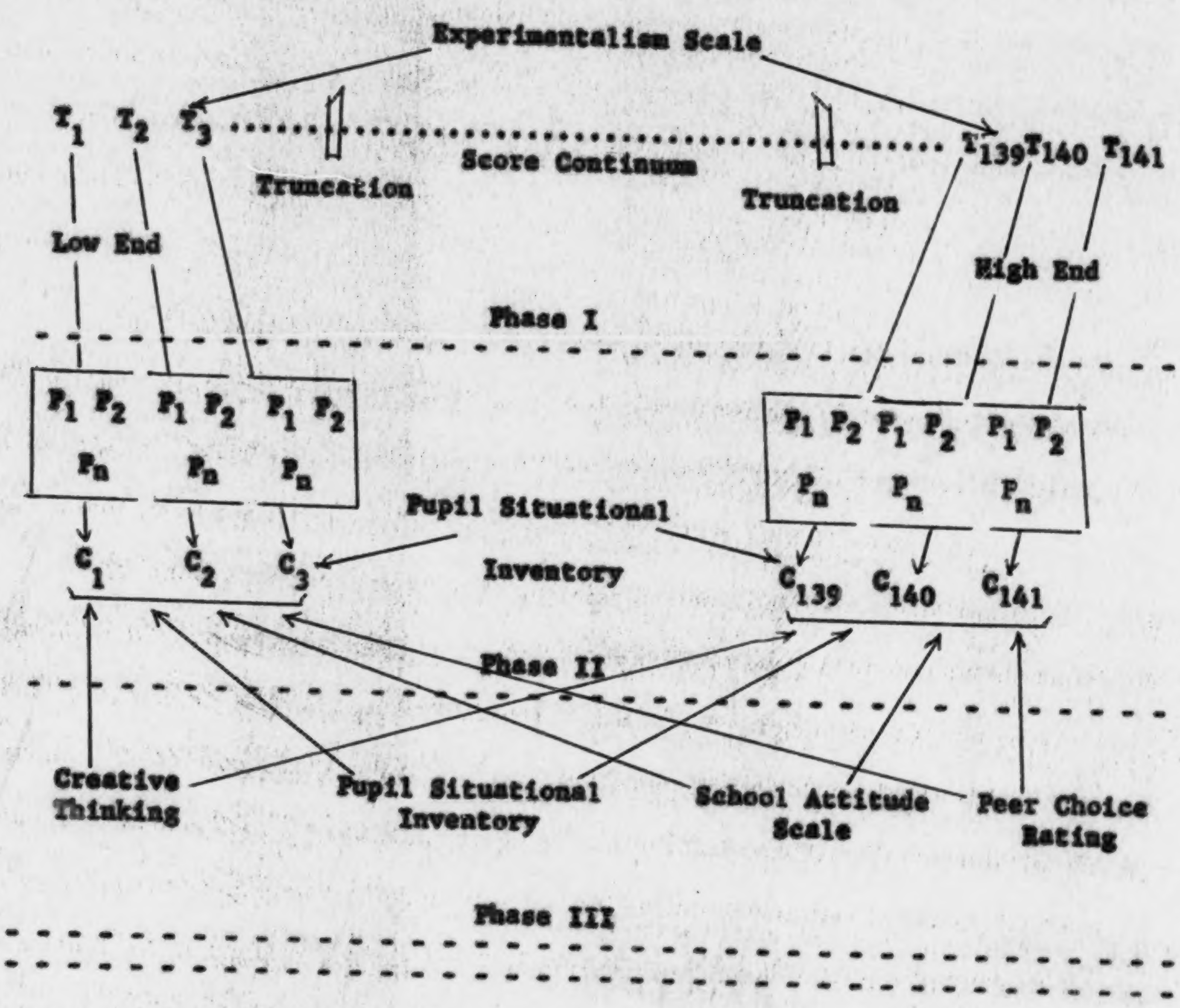
B.5.1. Was pupils' school attitude correlated with their sociometric status?

Overview of the Study

It was felt that in order to gain a panorama of what this study was planned to do, a paradigm like the one the next page may be helpful in bringing forth a better conceptualization of the experimental design of this investigation.

It should be pointed out that the arrows indicated in this paradigm have no other implications than the explication of steps taken. In Phase I of this study, the Experimentalism Scale* (Appendix I) was given to a group of 141 4th-6th grade teachers. As soon as teachers' data were collected, a truncation, with the scope of this study taken into consideration, was applied at each end of these teachers' score continuum on the basis of the result of a *t* test for making sure that teachers ranging from the lowest agreement to the highest agreement with Dewey's Experimentalism were statistically different. In Phase II, youngsters taught by teachers whose scores fell within the truncated scope at both extremes of the score spectrum were given the Pupil Situational Inventory in late September of 1964, which was developed in this study. In Phase III, these youngsters were again given the Pupil Situational Inventory in conjunction with Creative Thinking, Peer Choice Rating, and School Attitude Scale in early January of 1965.

A Paradigm to Depict the Experimental Design of this Study


Experimentalism Scale
T1 T2 T3
Score Continuum
T139 T140 T141
Truncation
Truncation
Low End
High End
Phase I
P1 P2 P1 P2 P1 P2
Pn Pn Pn
P1 P2 P1 P2 P1 P2
Pn Pn Pn
Pupil Situational Inventory
C1 C2 C3
C139 C140 C141
Phase II
Creative Thinking
Pupil Situational Inventory
School Attitude Scale
Peer Choice Rating
Phase III

T_1 : teacher No.1, T_2 : teacher No.2, etc.

P_1 : pupil No.1, P_2 : pupil No.2, etc., of a given teacher.

C_1 : classroom No.1, C_2 : classroom No.2, etc.

Briefly, this investigation necessitated the execution of the following tasks: (1) a review of the literature germane to this study, (2) construction of an instrument whereby the degree of experimental attitude of 4th-6th graders could be measured, (3) the process of experimentation whereby the data could be collected, (4) analyses of the data in a manner appropriate to hypotheses and questions posed for investigation, and (5) an attempt to interpret findings and to draw implications.

In order to obtain some insights into what, if any, has been done on the relations between experimental attitude in terms of Dewey's Experimentalism and creativity, school attitude, and sociometric status, Chapter II offers a brief review of the relevant literature in this regard.

The development of the Pupil Situational Inventory for measuring 4th-6th grade pupils' experimental attitude and the selection of three other instruments is discussed in Chapter III.

Chapters IV and V treat procedures of this study, including a full description of subjects, experimentation, analyses of the data and the presentation of findings in the light of hypotheses and questions.

Chapter VI deals with the interpretation of findings and the drawing of implications as a kind of stimulation for future research.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter presents a review of literature pertinent to this study, including: (a) complementary relation between philosophy and educational research, (b) some studies undertaken along the line of creativity, (c) some studies conducted on pupils' attitudes toward school, and (d) relevant studies dealing with pupils' sociometric status.

Complementary Relation Between Philosophy and Educational Research

As early as 1931, Kilpatrick states that philosophy and scientific research are not antagonistic but complementary processes.[1] Brubacher and Martz contend that science and philosophy have been portrayed as different parts of a single continuum of inquiry and research.[2] Kilpatrick in pointing out a misconception about philosophy says:

> Some seem to think of philosophy simply as a priori system founded on dialectic juggling. Possibly some past philosophies have thus sinned.[3]

Likewise, Brim writes that Christian philosophers sought it (philosophy) by intuition and prayer, and the lay philosophers sought it through reason, sometimes called "pure."[4]

---

[1] W.H. Kilpatrick, "Relation of Philosophy to Scientific Research," *J. of Educational Research*, Vol.24, (September, 1931), p.105.

[2] J.S. Brubacher and V. Martz in W.S. Monroe (ed.) *Encyclopedia of Educational Research*, (New York: The Macmillan Co., 1950), pp.817-820.

[3] Kilpatrick, *op. cit.*, p.111.

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[4] O.G. Brim, "Orientation of Educational Research to Present Day Science and Philosophy," Educational Research Bulletin, Vol.13, (1934) p.29.

Dewey states his contention about this relationship between philosophy and science:

> The narrower the field of inquiry, the more strictly scientific will it be, because conditions are then capable of more strict control. The wider the context, the more difficult becomes exact control of causal conditions. When the field is so broad as to include human weal and woe, and when it raises the problem of how existing social conditions can be modified to contribute more effectively to the values judged to be fundamental, inquiry is openly philosophy. But there is no fixed line at which it can be said that science ends and philosophy begins. The distinction between the two is relative to two things that vary with changes in historical and social condition. It is not absolute......[5]

---

[5] John Dewey, "The Determination of Ultimate Values or Aims through Antecedent or A Priori Speculation or through Pragmatic or Empirical Inquiry," The Scientific Movement in Education, Thrity-seven Yearbook of the National Society for the Study of Education, Part II, (Bloomington: Public School Publishing Co., 1938), p.478.

Brown, attempting to give a critique of the development of relationship between philosophy and modern educational research, summarizes that most, if not all, educational researchers tended to have conducted their empirical studies within the tradition of psychology. As a matter of fact, most of them deliberately avaded encroaching upon the philosophical territory.[6]

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[6] Brown, op. cit., pp.5-12.

Brim further points out that "both philosophy and educational research are concerned with clear thinking and sound conclusions, as ready to strengthen another's point as to challenge it, as willing to indicate the weakness of his own argument as to defend it if the evidence seem so to point.[7]

In concluding his article to picture a two-way traffic, Kilpatrick states with emphasis:

> Anyone who in his thinking has no place for his own actual working philosophy is simply refusing to open his eyes to a most significant factor at work in his own thinking and conduct. So to refuse with consequent refusal to examine and criticize is in effect to prefer ignorance to knowledge.
>
> As to testing generalizations. All ideas or theories or generalizations of whatever kind, proposed or adopted plans or policies as well as alleged or accepted "laws" and "facts" -- all must be tested by the way they work out in practice. There is no escape.[8]

All the above quoted contentions are merely illustrative. They all tend to point to the fact that philosophy and scientific research are not only complementary but also intertwined.

Some Studies on Creativity

The literature is replete with studies, empirical, theoretical, analytical, and historical, on creativity. However, no study on the relation between Dewey's philosophy of Experimentalism and creativity has been found in this review

---

[7] Brim, op. cit., p.29.

[8] Kilpatrick, op. cit., pp.113-114.

Dewey places a great deal of emphasis upon creativity. He writes:

> ......The child is already intensely active, and the question of education is the question of taking hold of his activities, of giving them direction. Through direction, through organized use, they tend toward valuable results, instead of scattering or being left to merely impulsive expression.[9]

Another instinct of the child is the use of pencil and paper. All child like to express themselves through the medium of form and color.[10]

In another publication Dewey talks about both the importance of creativity *per se* and the approach to enhance the exhibition of creativity. He states:

> Every individual is in some way original and creative in his very make-up: that is the meaning of individuality. What is most needed is to get rid of what stifles and chokes its manifestation. When the oppressive and artificial load is removed, each will find his own opportunity for positive and constructive work in some field. And it is not the extent, the area, of his work that is important as much as its quality and intensity.[11]

Other researchers join Dewey in that "children start school with eagerness, curiosity, capacity for wonder and puzzlement, spontaneity, spirit of adventure, imagination, sensitivity to and fascination for the world in which they live."[12]

---

[9] John Dewey in M.S. Dworkin (ed.), *op. cit.*, p.54.

[10] *Ibid.*, p.56.

[11] John Dewey in R.B. Winn (ed.), *op. cit.*, p.17.

[12] Association for Supervision and Curriculum Development, *Perceiving, Behaving, Becoming*, (1962 Yearbook), p.142.

Dewey's contentions in this regard provided a clue to examining the relation between creativity and experimental attitude (obtained by pupils' indications of the kinds of teachers they would like to have with Dewey's Experimentalism as the frame of reference).

In dealing with creativity, intelligence seems to be one of the most salient factors. Investigators are numerous; the following researchers are mentioned for illustrative purpose. Guilford, Getzels and Jackson, and Torrance conducted studies in order to find out the extent to which creativity is accountable in intelligence.[13]

To summarize the studies reviewed on the relation between creativity and intelligence, the present state of knowledge indicates that there is not a clear-cut delineation of the structure of creativity. There might be a number, if not a myriad, of creative abilities present in an individual, some of which might call for more intelligence for effective functioning than others.

Some Studies on Pupils' Attitude toward School

Despite stuides on relations between pupils' attitudes toward school and their school achievement, sex difference, intelligence,[14] and many others, which are voluminous,(The quoted references are merely illustrative.) no research has been undertaken to investigate the relation between Dewey's Experimentalism and pupils' school attitude.

---

[13] J.P. Guilford, "Creativity" *American Psychologist*, Vol.5, (Sept. 1950), pp.444-454.

__________, "Potentiality for Creativity and Its Measurement," in *Proceedings of the 1962 Invitational Conference on Testing Problems*, (Princeton, New Jersey: Educational Testing Service, 1962), p.36.

J.W. Getzels and P.W. Jackson, *Creativity and Intelligence*, (New York: John Wiley & Sons, Inc., 1962), p.16.

E.P. Torrance, his review on "Creativity and Intelligence," *School Review*, Vol.71, (Spring, 1963), p.114.

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[14] Louis Monash, "What Makes children Like or Dislike School?" Education Digest, Vol.13, (October, 1947), pp.29-31.

C.E. Schorer, "How Emotionally Disturbed Children View the School," Exceptional Children, Vol.27, (December, 1960), pp.191-195.

Samuel Tenenbaum, "Attitudes of Elementary School Children to School, Teachers and Classmates," J. of Applied Psychology, Vol.28 (1944), pp.134-141.

Motomi Kishida, "Studies on Human Relations Between Pupils and Teachers," Japan J. of Educational Psychology, Vol.101, (1962), pp.1-10 (Psychological Abstract No.5607).

P.E. Eiserer, "Childfen's Perceptions of School and Teachers," Educational Leadership, Vol.2, (1954), pp.409-412.

As early as 1897, Dewey criticizes the educational practices which might be one of the causes for youngsters to develop an unfavorable attitude toward school. He states:

> I believe that much of present education fails because it neglects this fundamental principle of the school as a form of community life. It conceives the school as a place where certain information is to be given, where certain habits are to be formed. The value of these is conceived as lying largely in the remote future; the child must do these things for the sake of something else he is to do; they are mere preparation. As a result they do not become a part of the life experience of the child and so are not truly educative.[15]

---

[15] John Dewey in M.S. Dworkin, (ed.) op. cit.,pp.23-24.

It was this kind of contention that Dewey made, plus the investigation undertaken by this investigator, which instigated the examination of the relation of Dewey's Expetimentalism to school attitude.

Some Studies Dealing With Pupils' Sociometric Status

Since the advent of the use of sociometric technique in social research,[16] literature has increased by leaps and bounds. Nonetheless, no investigatinn has been made to find out the relation between Dewey's Experimentalism and sociometric status.

Several variables, such as, intelligence or I.Q., socioeconomic levels, propinquity, and chronological age, were investigated by many researchers; those listed in this study for illustrative purposes were indications of the extent to which these examined variables were found to be associated with sociometric status.[17] To summarize these reviewed studies dealing with the above-named variables on sociometric status, the following generalizations were obtained: intelligence is not significantly related to sociometric choice; the positive correlation between socioeconomic levels and sociometric choice is low and inconclusive; children in general tend to choose friends according to propinquity, but they do not necessarily select all as friends, who live in the vicinity; chronological age seems to correlate with sociometric selection for a small range of ages.

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[16] J.L. Moreno, Who Shall Survive? (Washington,D.C.: Nervous and Mental Disease Publishing Co.,1934).

[17] Beth Wellman, "The School Child's Choice of Companions," J. of Educational Research, Vol.14, (1926), pp.126-132.

P.H. Furfey, "Some Factors Influencing the Selection of Chums," J. of Applied Psychology, Vol.2, (1929), pp.47-51.

Reva Potashin, "A Sociometric Study of Children's Friendships," Sociometry, Vol.9, (1946), pp. 48-70.

M.E. Bonney and Johnny Powell, "Differences in Social Behavior between Sociometrically high and Sociometrically low Children," J. of Educational Research, Vol.46, (1953), pp.481-495.

J.J. Gallagher, "Social Status of Children Related to Intelligence, Propinquity, and Social Perception," Elementary School Journal, Vol.58, (January, 1958), pp.225-231.

There were two sources which prompted the investigator to look into the relation between Dewey's Experimentalism and sociometric status. One was the invetigator's previous study.[18] The other was Dewey's The Quest for Certainty in which he tries to expound the concept of "relativism". What he means by relativism is to subject the realm of values and judgments to scientific inquiry instead of accepting them on a priori faith. Dewey observes that some people consider scientific inquiry into the realm of values and judgments as a kind of threat, because this kind of inquiry undoubtedly questions their untested assumptions, unvalidated beliefs, and unexamined practices. As illustrative citations, Dewey states:

> It would be presumably taken as a sign of extreme naivete, if not of callous insensitiveness, if one were to ask why all this ardor to reconcile the findings of natural science with the validity of values? Why should we not proceed to employ our gains in science to improve

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V.H. Bedoian, "Social Acceptability and Social Rejection of the underage, at-age and overage Pupils in the Sixth Grade," J. of Educational Research, Vol.47, (March, 1954), pp.513-520.

[18] George S.C. Cheong and M.V. DeVault, Ibid.

> our judgements about values, and to regulate our actions so as to make values more secure and more widely shared in existence?
>
> I am willing to run the risk of charge of naivete for the sake of making manifest the difference upon which we have been dwelling. If men had associated their ideas about values with practical activity instead of with cognition of antecedent Being, they would not have been troubled by the findings of science....[19]

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[19] John Dewey, op. cit., p.42.

A cursory look at Dewey's position might not reveal the direct relevancy to the examination of the relation between Dewey's Experimentalism and sociometric status. However, a systematic scrutiny would bring forth a comprehensible picture. It was postulated in this study that a person, if high in his attitudes in terms of Dewey's Experimentalism, would be relative in his fundamental position on social issues, flexible in his inter-personal approach, and open in his value-orientation. Consequantly, this kind of person might be able to get along better with his fellow-men than the kind of person who is rigid in attitudes and close-minded in his values.

CHAPTER III

DEVELOPMENT OF THE PUPIL SITUATIONAL INVENTORY AND SELECTION OF THREE OTHER INSTRUMENTS

As stated earlier, experimental attitude, teacher discrepancy, and teacher perception were planned with Dewey's philosophy of Experimentalism as the frame of reference. Therefore, the main task of this study was to developmen instrument named the Pupil Situational Inventory for measuring these three variables. The following tasks were involved in developing this instrument: (a) building an item pool, (b) judges' rating of the items constructed in the light of Brown's theoretical framework (Appendix II) for Dewey's Experimentalism, (c) the process of categorzing items in accord with Brown's framework, (d) preliminary examination of this inventory by a group of 4th-6th graders with regard to the language used in it, and (e) the description of the pilot study for an item analysis.

Developing the Pupil Situational Inventory

In developing the Pupil Situational Inventory, the following sources were used: (a) Brown's two forms of Teacher Practices Inventory (Appendix I), (b) Dewey's Democracy and Education and Experience and Education, and (c) items constructed by the investigator within the confines of Brown's theoretcial framework (Appendix II) for Dewey's Experimentalism.

After several sessions of reactions and revisions from the supervising professors, 62 items were constructed and randomized (Appendix III).

Judges' Rating of the Pupil Situational Inventory

The next step was to subject the Pupil Situational Inventory to judges' rating, the purpose of which was to find out which of the 62 items represented what Dewey's Experimentalism is for (positive items) or against (negative items). On the basis of mathematical probabilities, that is, one out of 243 chances or $(1/3)^5$ mathematically, any six out of eight judges would agree on any one of the three options of an item in the Pupil Situational Inventory, a decision was made that eight judges be used for rating this instrument, and that the agreement of any six of these 8 judges or 75 per cent agreement be the minimum for accepting an item. It was, also, decided that four judges be from the Department of Philosophy, and the other half from the Department of Education, with each judge equally weighed. Criteria for the selection of judges were spelled out in advance as: (a) Judges must be faculty members of the University of Wisconsin; (b) Judges must be acquainted with Dewey's philosophy of Experimentalism in general; and (c) Judges must be familiar, to a certain degree, with the teaching-learning situations at the elementary school level. In the light of these criteria, it was felt that the interests and competencies of these 8 judges tended to be complementary to one another. Meanwhile, standards for rejecting and accepting an item by basing upon judges' rating were pre-determined and presented as follows:

(a). If three or more judges indicated "uncertain" (o) for an item, that specific item would be rejected.

(b). If three or more judges failed to rate an item in any other manner than the three modes of indication specified in the rating instructions, such as, commenting that an item was ambiguous, that particular item would be rejected.

(c). If three or more judges rated an item positively (+) as being in agreement with Dewey's philosophy of Experimentalism, and if three or more other judges rated the same item negatively (-) as being in disagreement with Dewey's philosophy of Experimentalism, that item in question would be rejected.

(d). If three or more judges rated an item negatively (-) as being in disagreement with Dewey's Experimentalism, which was originally designated as an item in agreement with Dewey's Experimentalism, and vice versa, that specific item would be rejected.

(e). If six or more judges rated an item positively (+) as being in agreement with Dewey's Experimentalism, that particular item would be accepted as such.

(f). If six or more judges rated an item negatively (-) as being in disagreement with Dewey's Experimentalism, lthat particular item would be accepted as such.

Following selection of judges and pre-determination of criteria for rejecting or accepting an item, the Pupil Situational Inventory (Appendix III) with rating instructions (Appendix IV) was memeographed and personally handed to each of the eight judges who were requested to return the rated inventory to the investigator at their convenience.

A summary of the results of judges' rating is presented below:

(1). 44 out of 62 items, or 70.9 per cent, were accepted on the basis of a minimum of 75.0 per cent judges' agreement.

(2). Assuming that we could sum and average the percentages of judges' agreement on accepted items, the over-all percentage of acceptance was 90.0.

(3). In regard to the 44 accepted items, there was a hundred per cent agreement between the investigator's original theoretical direction and judges' amalgamated rating in the sense of positive and negative items. This did not mean that there was a hundred per cent consensus between the experimenter and each of the 8 judges in this regard.

(4). Out of 44 accepted items, 20 received one hundred per cent agreement among 8 judges; 16 of these 20 items were originally designated as what Dewey's Experimentalism was against.

(5). 14 out of the 18 rejcted items on the basis of a minimum of 75 per cent judges' agreement were initially designed in agreement with Dewey's Experimentalism.

Judges' rating indicated that negative items, or those items which were developed to depict what Dewey's Experimentalism is against, seemed to have significantly better chances of surviving judges' rating on the basis of pre-determined 75 per cent minimum agreement among these eight judges, and of scoring one hundred per cent consensus.

The Process of Categorization and its Analysis

Before presenting the description of this categorsing process, a few words for elucidating the act of categorizing might be in order. When items were constructed, the experimenter had no intention of categorizing them. Nonetheless, he was fully aware that all 62 items constructed fell within the confines of Dewey's Experimentalism, because they were framed according to Brown's theoretical framework. Since Brown's framework was categorical in structure, the process of categoriting the items became a procedural necessity.

Brown's theoretical framework for Dewey's Experimentalism (Appendix II) consisted of two parts. The positive part to depict what Dewey's Experimentalism is for was composed of 7 categories; the negative part delineating what Dewey's Experimentalism is against comprised 5 categories. On the basis of mathematical probabilities, that is, $(1/5)^3$, or one out of 125 chances any four out of 6 categorizers would agree on categorizing an item in one category in Brown's negative part of framework (to use the lesser number of categories), decisions were made that six categorizers be used, and that four out of 6 categorizers' agreement be the minimum for establishing an item as belonging to a particular category in Brown's theoretical framework. As soon as the number of categorizers and the minimal agreement of categorizers were determined, criteria for the selection of categorizers were spelled out in advance: (a) A categorizer must have some understanding of Dewey's Experimentalism; (b) A categorizer must have had some teaching experiences; and (c) A categorizer must be a graduate student at the University of Wisconsin. Consequently, 6 graduate students meeting the above criteria were chosen for this purpose.

The subsequent task was to divide the 44 items which outlived judges' rating into positive items and negative items on the basis of their rating. Each item was written on a small piece of paper and then placed in its appropriate, positive or negative, envelopes. The categorizing instructions and Brown's theoretical framework for Dewey's Experimentalism, both positive and negative parts were mimeographed (Appendix V) and given to each of the six categorizers with two envelopes containing positive and negative items respectively. As soon as the completed categorization forms were received, analyses were made. In Tables I and II on the following two pages are presented summaries of item/items categorized by these 6 categorizers and established on the two-third minimum, or 4 out of 6 categorizers, agreement basis as belonging to a particular category in Brown's theoretical framework for Dewey's Experimentalism.

According to the results shown in Tables I and II, there was at least, up to this point of development of the instrument, one item for each of the categories in both positive and negative parts of Brown's theoretical framework for Dewey's Experimentalism.

In addition to the above analysis by categories, examination from other avenues was, also, undertaken. In Table III on page 26 is offered the number of items and their corresponding number of categorizers. These items were categorized by these 6 categorizers to cover more than one of the categories in Brown's theoretical framework. The result of Table III shows that 30 out of a total of 44 items, or 68.1 per cent, were given an indication that they were covered by more than one of the categories in Brown's theoretical framework for Dewey's Experimentalism.

TABLE III

SUMMARY OF CATEGORIZATION WITH RESPECT TO POSITIVE ITEMS OR ITEMS IN AGREEMENT WITH DEWEY' EXPERIMENTALISM

Theoretical Category	Item No.	No. of Categorizers
I	11	4
	20	4
	38	6
II	44*	4
III	2*	6
	8	5
	44*	4
IV	15	4
	40	4
V	10	4
VI	1	5
	2*	4
	27	5
	35	4
VII	31	4
	43	6
	44	4

*Items were indicated by these categorizers as belonging to more than one of the categories in Brown's theoretical framework for Dewey's Experimentalism.

TABLE II

SUMMARY OF CATEGORIZATION WITH RESPECT TO NEGATIVE ITEMS OR ITEMS IN DISAGREEMENT WITH DEWEY'S EXPERIMENTALISM

Theoretical Category	Item No.	No. of Categorizers
I	23	4
	29	5
II	28	5
	34	5
III	3*	4
IV	3*	4
	7	4
	9*	4
	16*	4
	18	5
	32	4
	21*	5
	9*	4
	12	4
	13	4
	16*	4
	21*	4
	25	4

*Items were indicated by these categorizers as belonging to more than one of the categories in Brown's theoretical framework for Dewey's Experimentalism.

TABLE III

ITEMS CATEGORIZED AS BELONGING TO MORE THAN ONE OF THE CATEGORIES IN BROWN'S THEORETICAL FRAMEWORK AND THEIR RESPECTIVE NUMBER OF CATEGORIZER/CATEGORIZERS

Positive Items		Negative Items	
Item No.	No. of Categorizers	Item No.	No. of Categorizers
2	4	29	3
44	4	13	3
39	2	12	1
43	1	18	3
1	2	32	3
33	2	3	3
35	1	34	1
30	1	42	3
19	1	9	3
40	2	25	2
38	1	16	3
10	2	21	3
20	1	24	2
		23	2
		7	1
		14	1
		6	1

In Table IV is indicated the number of items so categorized by these six categorizers as not being encompassed by any of the categories in Brown's theoretical framework for Dewey's Experimentalism. The result of Table IV on the next page shows that 11 items were given such an indication, and that only one item was categorized in this manner by two of these categorizers.

TABLE IV

ITEMS CATEGORIZED AS BELONGING TO NONE OF THE CATEGORIES IN BROWN'S THEORETICAL FRAMEWORK AND THEIR RESPECTIVE NUMBER OF CATEGORIZER/CATEGORIZERS

Positive Items		Negative Items	
Item No.	No. of Categorizers	Item No.	No. of Categorizers
31	2	5	1
41	1	7	1
20	1	22	1
11	1	28	1
		17	1
		42	1
		36	1

All 6 categorizers did put down some kind of comment. However, it was felt that it was not necessary to recapitulate what they all wrote. A sample representing the general trend of their reaction to the categorizing process is presented below.

One categorizer commented:

> The items seemed to be of such gross dimensions that they were either applicable in broad terms to the category of offering a situation which allows for and encourages pupil decision making or they covered the entire gamut of the various categories.

Another categorizer wrote:

> Frustrating. This was most difficult. To begin with the categorizing I've done is very narrow and artificial, ac tually most of these involve the entire problem solving sequence and don't fall in one special category. Really what I've done had little value, e.g. item No.33 really represents I-VII, etc., not just one ortwo categories.

In summary, after having examined what the six categorizers commented and the number of items categorized by them as covering more than one of the categories in Brown's theoretical framework for Dewey's Experimentalism, it appeared proper to contend that they all tended to agree to the experimenter's original intent, that is, most, if not all, items in the Pupil Situational Inventory seemed to connote the entire process of reflective thinking rather than a segment of this process, and to fall within the purview of Dewey's philosophy of Experimentalism.

Preliminary Examination of the Language used in the Pupil Situational Inventory

Because the Pupil Situational Inventory was worded in a manner subjectively regarded as appropriate to the understanding of 4th-6th graders, the purpose of this preliminary examination was to find out whether or not these youngsters could really comprehend the meaning of the language used in it. The reason why this step was regarded as preliminary was that it was not intended to eliminate item/items, but to approach 4th-6th graders' language by polishing some words, if necessary.

17 4th-6th graders were involved in this preliminary examination, attending the Summer Laboratory School, The University of Wisconsin. This sample of subjects was not planned to be random or representative, but convenient. There were no mentally handicapped children. The Pupil Situational Inventory consisting of 44 items at this point (Appendix VI) was mimeographed and handed to each of them. The experimenter discussed with them item by item for about fifty minutes, and they appeared to be co-operative.

At the end of this preliminary examination, it was discovered that no item in the Pupil Situational Inventory was completely not understood by all of them, except that 5 items did not seem to be well comprehended by some 4th graders. However, it was decided to retain the language used in the Pupil Situational Inventory until the subsequent step of an item analysis in a pilot study.

A Pilot Study for the Pupil Situational Inventory

The objective of this pilot study was to find out which items discriminated among 4th-6th graders and which items did not discriminate among them on a statistical basis. Since no school was in regular session at the summer time in Madison, Wisconsin, subjects required for this pilot study were secured through the Recreation Department, Madison, Wisconsin, which supervised all playgrounds in the city. It was on a convenient basis that five playgrounds were chosen for this pilot study. The Pupil Situational Inventory was stencilled (Appendix VII) and given to each youngster that took part in this pilot study, and standard instructions were given (Appendix VIII) at the time of administering the test. 82 subjects were involved in the study, not calculated to be random or representative. They all seemed to co-operate with the investigator, and took about thrity minutes to complete the inventory. There were no mentally retarded children in this sample.

As soon as data were collected, two statistical steps were taken. The first one was to examine the degree of appropriateness or lack of it of the arbitrary weights assigned by the investigator to each item in the Pupil

Situational Inventory, that is, 4 3 2 1 were arbitrarily assigned to be the numerical equivalents for YES yes no NO continuum for positive items; these numerical equivalents were reversed in the case of negative items. The second step, in a sense hinging upon the first one, was the item analysis itself. Among the alternatives available for determining a set of optimum weights and for item analysis, the Method of Reciprocal Averages[1] was adopted for the first step, and the Generalized Item And Test Analysis Program (GITAP)[2] for the second step. Before describing how these two techniques were actually used in this study, a brief description about each of them and the rationale for their having been adopted appeared necessary.

In describing the Method of Reciprocal Averages, Mosier points out three assumptions underlying this method:

> (1) that there exists some variable which is measured in common by the majority of the items included in the *Inventory*; (2) that this is the variable which it is desired to measure; (3) that it is possible to assign weights to the items on an *a priori* basis which bear some recognizable relation to optimum weights. (This last assumption is convenient, but not necessary. If assumption (1) holds, a random distribution of initial weights should eventually produce the optimum weights.)[3]

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[1] C.I. Mosier, "Machine Methods in Scaling by Reciprocal Averages," *Proceedings, Research Forum*, (New York: International Business Machines Corporation, 1946), pp. 35-39.

[2] F.B. Baker, "Generalized Item And Test Analysis," (Mimeograph of the Laboratory of Experimental Design, Department of Educational Psychology, University of Wisconsin, July 1, 1963).

[3] Mosier, *op. cit.*

These three assumptions stated by Mosier seem to be compatible with what the investigator had in mind when he constructed the Pupil Situational Inventory. It was his intent that this inventory was designed to measure pupils' experimental attitude in terms of Dewey's Experimentalism.

Then Mosier continues to state some important properties of a set of weights resultant from the Mehhod of Reciprocal Averages:

> (1) the reliability of each item and the internal consistency of the weighted inventory are maximized; (2) the correlation between item and total score is maximized and the product moment correlation coefficient become identical with the correlation ratio; (3) the relative variance of the distribution of scores (coefficient of variation) is maximized; (4) the relative variance of item-scores within a single case is minimized; (5) the correlation between an item and total score is proportional to the standard deviation of the item-weights for that item; (6) questions which bear no relation to the total-score variable are automatically weighted so that they exert no effect on the scoring.[4]

These properties of a set of weights resulting from the Method of Reciprocal Averages were sound and appropriate for the Pupil Situational Inventory developed in this study. Therefore, it was on these bases that the Method of Reciprocal Averages was adopted in this study, which was written by Ragsdale and Baker into a computer program known as RAVE[5] at the University of Wisconsin.

It is usually recognized by a test constructor that the need for determining the value of each test item for making the test in which it is included is vital in the sense that the test item ranks examinees precisely with respect to a defined criterion variable, which in this context was experimental attitude expressed in terms of Dewey's Experimentalism. Davis deals in detail with item selection techniques and writes:

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[4] Mosier, _op. cit._

[5] Ronald Ragsdale and F.B. Baker, "The Method of Reciprocal AVerages for Scaling of Inventories and Questionnaires," (Mimeograph of the Laboratory of Experimental Design, Department of Educational Psychology, University of Wisconsin, July 1, 1963).

> Among stattistics proposed for expressing item discriminating power in the form of relationships, the biserial product-moment r (sometimes called the point biserial r), the biserial r, the tetrachoric r, and phi coefficient have been suggested. The choice among these depends partly on the purpose for which the test and the item analysis data are to be used, partly on the convenience with which each statistic serves that purpose, and partly on the ease and economy of computation required by the practical circumstances.[6]

From the above quotation if might be proper to infer that when Davis stated this contention, computer sciences were not as advanced as they are today. Consequently, he listed three criteria for making a choice among four types of statistics proposed for expressing item discriminating power. From the current point of view, the last two criteria that he listed are more practical than theoretical or mathematical, which did not pose any problem in this study. With respect to the first criterion, it was regarded as compatible in the sense that the Pupil Situational Inventory was planned to be developed for measuring 4th-6th graders' experimental attitude, and that data procured in this study were intended to be continuous in nature.

Then Davis continues to point out the merits as well as disadvantages of each of these four types of statistics mentioned above. In regard to the biserial product moment r, which was the concern here, he states:

If the test constructor is primarily interested in constructing

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[6] F.B. Davis in E.F. Lindquist (ed.) Educational Measurement, (Washington, D.C.: American Council on Education, 1950), p.289.

> a predictor test for use with a group of examinees having essentially the same level and distribution of ability as the group used for item analysis purposes, the biserial product-moment r may be used when the criterion is a continuous variable and will be used as such.[7]

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[7] Davis, op. cit., pp.289-290.

What Davis states in the above citation appeared to be compatible with this study in that the Pupil Situational Inventory was given to a group of 4th-6th grade youngsters for the purpose of an item analysis, and then administered to another group of 4th-6th grade pupils for experimentation. Data collected in this pilot study supported that the frequency distribution of pupils' scores on experimental attitude was fairly normal.

Later Davis summarizes his treatment of statistical techniques in connection with item analysis and writes:

> ....Nevertheless, circumstances that favor the use of biserial r as an index of discriminating power appear to be most numerous...
>
> Unquestionably, biserial correlation coefficients would have been used more frequently in the past for item analysis purposes if they were not so laborious and expensive to obtain.... [8]

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[8] Davis, Op. cit., p.297.

Davis comments on the merits of the biserial r and then goes back to reiterate two practical reasons which were no problem in this study.

It was essentially on the mathematical bases expounded by Davis[9]

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[9] Davis, Ibid., pp.266-328.

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that Baker developed the Generalized Item And Test Analysis Program (GITAP) in which both r_{bis} (biserial r) and $r_{pt\ bis}$ (point biserial r) formulae were used for different purposes.[10] However, it should be pointed out that r_{bis} and $r_{pt\ bis}$ could be run by the same GITAP procedure under a slightly different technique of programming. In the case of item analysis for this study, biserial r was used.

In another article Baker deals in depth, including statistical, graphic, and numerical illustrations, with the contrast between the traditional item analysis techniques and the Generalized Item And Test Analysis Program. In conclusion he states:

> ..... the lack of precision inherent in traditional item analysis techniques makes it difficult to build tests with controlled characteristics. The item characteristic curve approach, on the other hand, provides a logical framework for describing precisely how an item functions. Although the computations for fitting the normal ogive are complex, computer programs are available which perform a complete test and item analysis including X_{50} and .[11]

It was on these mathematical and theoretical bases dealt with above plus practical advantages resultant from the computer programs that the Generalized Item And Test Analysis Program (GITAP) was adopted in this study for an item analysis on the Pupil Situational Inventory.

In employing two above-discussed statistical techniques for an item analysis, what was actually done in this study was that an arbitrary set of item response weights assigned by the experimenter to the Pupil Situational Inventory was used to initiate an iterative process which by means of the RAVE procedure eventuated in a new set of weights presented in Appendix IX. A word of caution with regard to this new set of weights might be necessary. This new set of weights was not intended to beused for scoring the Pupil Situational Inventory in the final analysis of data; it was planned for this item analysis only with a view to harnessing the conditions to eliminate non-discriminative or inappropriate items.

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[10] Baker, *op. cit.*, p.3.

[11] F.B. Baker, "An Intersection of Test Score Interpretation and Item Analysis," *Journal of Educational Measurement*, Vol.1, (June, 1964), p.26.

As soon as this new set of weights was obtained through the RAVE ppocedure, it was incorporated into the Generalized Item And Test Analysis Program (GITAP) procedure. The product of this procedure is presented in Appendix X, in which it could be seen that most items in the Pupil Situational Inventory appeared to possess reasonable biserial correlation coefficients, except items 3, 15, 20, 27, 30, 33, 35, 38, 39, and 43. What a reasonable distribution of biserial correlation coefficients means in this study was a U-shaped distribution over four options of an item. Since 34 out of 44 items possessed reasonably desirable biserial correlation coefficients, it became difficult to make an eliminating decision. Nevertheless, a decision to reduce 34 items to a reasonable number of items for the final form of the Pupil Situational Inventory appeared to be necessary on two accounts. In the first place, an instrument comprising more than 25 items with two questions following each item might be too long for 4th-6th graders. Secondly, there were three other instruments administered simultaneously with the Pupil Situational Inventory. Hence, it was decided that the Pupil Situational Inventory be composed of 25 items, which were reasonable and adequate for the purpose that bhis instrument was developed to serve.

The subsequent step was to spell out some criteria for eliminating some relatively poor items. Three criteria or screens used in selecting items were: (a) the value of biserial correlation coefficients of an item, (b) the distribution of the number of subjects' responses in regard to four options of an item, and (c) the result of the categorizing process presented earlier. Items which sifted through these screens are presented below:

1. Miss P.B. often asks her children to make guesses and try them out.
2. Miss G.Y. shows her children the quickest way to solve a problem and expects them to do it exactly that way.
3. Miss B.P. is only interested in giving her children facts and information.
4. Miss J.T. lets her children move about freely only in the gym or on the playground.
5. Mrs. B.A. tells her class that what is good and what is bad should not be questioned.
6. Mr. Q.N. told his class to study chapter five of their social studies book and then to answer all questions at the end of the chapter.
7. Mrs. K.I. is interested in giving her children a wide choice in how they answer questions.
8. Mr. A.K. is interested in giving his children something to do, not something to remember.
9. Miss R.P. usually tells all her children to work on the same page of the same book at the same time.
10. Mr. Q.D. gave his children a problem to work on, and told them when they were finished, their answers should be exactly like the one that he had in mind.
11. Miss A.P. says to her children that they should never question what is right and what is wrong.
12. Miss A.Y. expects her children to find out what she wants, and what will please her.

13. Miss B.H. tells her children that they are in school to obey and to accept what she says without asking questions.

14. Miss C.P. does not care whether or not the facts and information she gives children will change their way of doing things.

15. Miss F.K. wants her children to do only those things that she asks them to do in school.

16. Miss A.K. often says to her class, "You must do exactly what I tell you to do, Then you will not make any mistake."

17. Mr. X.Z. gives his class questions which can be answered only by looking them up in shhool books.

18. Miss B.G. is much interested in her children's questions and asks them to find out what they know and what they do not know about these questions.

19. Miss A.Q. is interested in her children's change of behavior after they have learned something.

20. Miss T.G. often says to her class, "Children, if you want to know how to get things done quickly, the best way is to memorize what you read, and to follow exactly what the book tells you to do."

21. Miss K.X. often tells her children that if they don't study hard they will not get good grades or marks.

22. Miss G.A. tells her children that she can make them all the kind of people that she wants them to be.

23. Miss A.C. tells her class that whatever they bring to school from outside must agree with what the textbook says.

24. Mrs. S.F. asks John a question in class, but John does not know the answer. She quickly asks Mary, and Mary dosen't know the answer either. Then she continues to ask many others in class until she gets the right answer.

25. Miss A.A. likes her children to play with their own ideas so that they can come to their own discovery at the end.

The Selection of Three Other Instruments

In addition to the Pupil Situational Inventory developed in this study, three other instruments were selected for the three dependent variables. It appeared necessary to treat them briefly and to account for their being chosen in this study.

Creative Thinking[12]

This test (Appendix XI) was developed after J.P. Guilford's theoretical model for creativity, as admitted by its authors, and reliability coefficient was established. Criteria for scoring the test were, also, pre-determined by them (Appendix XII). Since this test appeared sound in its theoretical model, interesting and appropriate to youngsters of this age range, it could probably be justified for its being adopted in this study. This test originally consisted of 11 items requiring about fifty minutes to administer. Because of large amount of time called for by the complete test, and also because of the fact that there were three other tests given synchronously with this one, it was decided to abridge this test by selecting four comparatively more reliable sub-tests on the basis of one the authors' recommendation. It was, also, his contention that this test could be administered either as a whole or in part.

School Attitude Scale and Peer Choice Rating

School Attitude Scale (Appendix XIII) and Peer Choice Rating (Appendix XIV) were developed by the University of Wisconsin Teacher

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[12] F.B. May and A.W. Metcalf, authors of the test, are now at the Washington State University, Pullman, Washington.

Education Research Project, The University of Wisconsin, Madison, Wisconsin. Hoyt's reliability coefficient established for the School Attitude Scale was .84.[13] The concepts of reliability and validity in the usual sense of educational or psychological measurement are not applicable to Peer Choice Rating.[14] Since these two tests were developed and geared toward the interests of youngsters at this age range, they were chosen for use in this study.

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[13] D.W. Anderson, (ed.) *Design and Instrumentation*, (Mimeograph of the Wisconsin Teacher Education Research Project, The University of Wisconsin, December, 1963), pp. 117-123.

[14] M.E. Bonney in C.W. Harris, (ed.) *Encyclopedia of Educational Research*, (New York: The Macmillan Co., 1960), p.1321.

F.N. Pepinsky, "The Meaning of 'Validity' and 'Reliability' as applied to Sociometric Tests," *Educ. and Psychol. Measurement*, 9:39-49, 1949.

CHAPTER IV

EXPERIMENTATION AND COLLECTION OF DATA

In this Chapter are presented (a) the administration of the Experimentalism Scale to a group of 4th-6th grade teachers in three school districts involved, (b) description of the pre-test on the Pupil Situational Inventory to 4th-6th graders, (c) establishing the test-retest reliability coefficient for the Pupil Situational Inventory, and (d) description of the final collection of data.

Administering the Experimentalism Scale to 4th-6th Grade Teachers

In the light of the scope of a study of this nature, it was, essentially on an arbitrary basis, that three school districts in the northern part of Wisconsin be the population confines of this study. As soon as approval from these three superintendents of schools was secured, testing schedules for administering the Experimentalism Scale were formulated. In scheduling for testing, two important points were made clear to these school officials: (a) In accord with the experimental design of this study, special teachers, such as, music, art, physical education, special education, and teacher who taught the same entire class of youngsters before September of 1964, were excluded from the study; (b) The experimentation period was from September of 1964 to January of 1965, including a pre-test of the Pupil Situational Inventory in September of 1964 and the final collection of data in 1965 January.

Brown's Experimentalism Scale consisted of two equivalent forms of Personal Beliefs Inventory and two equivalent forms of Teacher Practice Inventory. On a random basis, Personal Beliefs Inventory-Form A and Teacher Practices Inventory-Form A (Appendix I) were chosen for administration to 4th-6th grade teachers in these three school districts when teachers were undergoing their orientation program respectively. All teachers seemed to co-operate with the experimenter at the time of testing.

After these teachers' completed forms of the Experimentalism Scale had been collected, scoring in accordance with Brown's procedure and weighting scheme was effected. A teacher's experiment attitude score was obtained by combining his/her score on the Personal Beliefs Inventory- Form A and his/her score on the Teacher Practices Inventory- Form A. Then 141 fourth-sixth grade teachers' scores on the Experimentalism Scale were arranged on a continuum. On the following bases eight teachers were truncated from each end of the score spectrum: (a) The result of a $\underline{t}$ test applied to these extreme groups of teachers showed that eight teachers on the low end and eight teachers on the high end of the score continuum were significantly different beyond .001 level; (b) Four teachers on the low end and one teacher on the high end had their scores on the Experimentalism Scale fall beyond two standard deviations, and the rest of the chosen teachers had their scores fall between two and one and a half standard deviations; and (c) The manageable magnitude of this study was, also, considered as convenient, but not essential. It might be appropriate to point out that the purpose of truncating eight teachers from each end of the score continuum on the Experimentalism Scale was to examine their pupils during the period of time mentioned earlier with respect to the variables chosen for investigation.

These sixteen 4th-6th grade teachers were, also, examined with respect to some of their personal particulars for the purpose of detecting any factor (s) governing all of them. In Table V on the next page is presented a compendium of these teachers' information, which shows that chronological element was not related to their being chosen in this study. Teachers, senior in age, were on both ends of the score continuum. There were comparatively young teachers in the low experimental group as well as in the high experimental group. There seemed to be no systematic pattern of any kind with respect to the variable of sex, except that there were more female teachers than male ones among these 16 teachers. This phenomenon of female dominance most probably might have been due to a proportionally large number of female participants. An analysis by grade/grades that these sixteen 4th-6th grade teachers taught appeared to exhibit no conspicuous pattern. The question of school systems was, also, examined, and the result indicated that teachers with low as well as high scores on the score continuum spread over three school districts.

Description of the Pre-test on the Pupil Situational Inventory

There were two objectives in pre-testing the Pupil Situational Inventory: (a) To comply with, as a part of the experimental design of the study, the pre- and post-test measure on the Pupil Situational Inventory; and (b) To obtain the internal consistency reli-

TABLE V

SUMMARY OF PARTICULARS OF THE SIXTEEN TEACHERS WHOSE EXPERIMENTAL ATTITUDE SCORES FELL ON THE TRUNCATED ENDS OF THE SCORE CONTINUUM ON THE EXPERIMENTALISM SCALE

Teacher	Score on the Experimentalism Scale	Age	Sex	Grade/Grades Taught
	Low End of the Score Continuum			
A	109	41	M	6
B	116	29	F	5-6
C	122	23	F	5
D	124	34	M	6
E	126	51	F	4
F	127	55	F	5
G	128	56	F	4
H	128	23	M	6
	High End of the Score Continuum			
I	176	53	F	4
J	176	24	F	4
K	176	46	F	6
L	178	32	M	5-6
M	179	36	F	6
N	180	57	F	4-5
O	181	33	M	4-6
P	186	50	F	4

ability coefficient for the Pupil Situational Inventory at the very beginning of the study in order to avert teachers' impact on their respective classes.

It was during the second week of instruction when the Pupil Situational Inventory (Appendix XV) was administered to sixteen classes taught by these sixteen teachers determined on the basis stated earlier. Standard instructions (Appendix VIII) were given at the time of testing, and these 4th-6th graders seemed to be co-operative with the investigator. The amount of time they took in completing this inventory was about twenty minutes. There were no mentally retarded children in the population.

As soon as data were collected, the Pupil Situational Inventory was scored on the basis of 4 3 2 1 continuum in the case of positive items and 1 2 3 4 in the case of negative items. The rationale for using this weighting scheme instead of one produced by the RAVE procedure was that Dewey's philosophy of Experimentalism, it was felt, should be determined by the investigator instead of by several hundred of 4th-6th graders, and this practice was regarded as appropriate and valid by judges mentioned earlier. Then data were programmed and run in order to procure the internal consistency reliability coefficient for the Pupil Situational Inventory by means of Hoyt's Analysis of Variance Method, which was .62. According to Hoyt, who proved that the internal consistency reliability coefficient of an instrument, if obtained through Hoyt's Analysis of Variance Method, is equivalent to the split-half reliability coefficient of that instrument on the basis of Kuder-Richardson 20[1], the split-half reliability coefficient of

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[1] C.J. Hoyt, "Test Reliability Estimated by Analysis of Variance," Psychometrika, Vol.6, (1941), pp.153-160.

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the Pupil Situational Inventory was, also, .62.

Establishing the Test-retest Reliability Coefficient FOR the Pupil Situational Inventory

Since the population of the study, by experimental design, consisted of the low experimental group and the high experimental group, test-retest reliability coefficient of the Pupil Situational Inventory could not be established on this population because of teachers' impact upon their respective pupils. However, it was felt that the test-retest reliability coefficient for this inventory was essential to this study. Therefore, it was decided to administer the Pupil Situational Inventory (Appendix XV) to a group of 4th-6th graders attending the University of Wisconsin Laboratory School. On the basis of Thorndike's recommendation on the time interval between test and retest,[2] the Pupil

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[2] R.L. Thorndike in E.F. Lindquist, (ed.) Educational Measurement, (Washington, D.C.: American Council on Education, 1951), p.577.

Situational Inventory, after randomization by using the table of random numbers,[3] was given to the same group of 4th-6th graders again two weeks later. Standard instructions were given (Appendix VIII) on both occasions; these youngsters appeared to co-operate with the experimenter. Sixty-one 4th-6th graders were involved, and there were no mentally handicapped children. The test-retest reliability coefficient for the Pupil Situational Inventory was found to be .81.

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[3] H.M. Walker and J. Lev, Statistical Inference, (New York: Holt, Rinehart and Winston, 1953), pp.484-485.

Description of the Final Collection of Data

The Pupil Situational Inventory (Appendix XVI) was post-tested in conjunction with Creative Thinking (Appendix XI), School Attitude Scale (Appendix XIII), and Peer Choice Rating (Appendix XIV) in the middle of January of 1965. Standard instructions were given (Appendix VIII) in the case of the Pupil Situational Inventory; three other instruments had self-explanatory instructions. These youngsters were found co-operative; they took about one hour to complete the above-named four instruments. 372 was the number of subjects used in the treatment of data, with 207 in the low experimental group and 165 in the high experimental group; there were no mentally retarded children. In regard to the number of subjects, it should be cautioned that it was not the original intent of this study to use individual scores, and elaboration on this was given later in this thesis.

In order to gain some insights, not for statistical purpose, into these 4th-6th graders of both the low experimental group and the high experimental group, a form (Appendix XVII) was given to these sixteen teachers requesting them to supply some items of information about their youngsters. The result of examination on some of these pupils' characteristics showed that as a whole, the low experimental group and the high experimental group tended to be similar in socioeconomic status, race, age range, native language, proximity, and I.Q. However, this similarity should not be construed as that subjects of these two groups were equated before this investigation on these variables.

CHAPTER V

ANALYSES OF DATA AND PRESENTATION OF FINDINGS

This Chapter deals with (a) scoring procedures for each of the four instruments used, namely, Pupil Situational Inventory, Creative Thinking, School Attitude Scale, and Peer Choice Rating, including how each subject's score on each of these four instruments was obtained, and (b) presentation of findings.

Scoring Procedures for the Four Instruments Used

Pupil Situational Inventory

There were three scores obtained from two questions of this inventory, namely, "Would you like a teacher like him/her?" and "Is your teacher like him/her?" The first question gave what was known in this study as the experimental attitude score of these youngsters, and the second question provided what was designated as the teacher perception score. Teacher discrepancy score was procured by summing the absolute difference, if any, between the first question and the second question. Each item of the Pupil Situational Inventory was scored on a 4-point scale (YES yes no NO continuum with 4 3 2 1 as the numerical equivalents for positive items and 1 2 3 4 as the numerical equivalents for negative items).

Creative Thinking

This test was provided with scoring procedures (Appendix XII) devised by its authors. What was done in order to get a pupil's score on this test was to add the number of points of these four sub-tests.

School Attitude Scale

This scale was scored on a 4-point continuum. Numerical equivalents for YES yes no NO continuum were 4 3 2 1 in the case of six positive items intended to express positive attitudes toward school. In the case of 6 negative items, the scoring scale was reversed. A subject's score on this instrument was obtained by adding scores on these 12 items.

Peer Choice Rating

Three envelopes were used in this test, marked YES yes NO respectively, with 3 2 1 as the numerical equivalents. Each subject's name, as so placed by another pupil in class, inside an envelope was accorded the score appropriate to that particular envelope. A subject's score was transferred to a chart (Appendix XVIII) numbered in a manner corresponding to pupils' arbitrarily assigned numbers in the envelopes. What constituted the sociometric status score for a particular subject in a class was the total score given to him/her by his/her classmates at that particular time. A subject's own name was kept constant by deletion in all these 16 classes. However, it was felt that a subject's sociometric status score so obtained only indicated his/her sociometric position in a particular class. In order to enable comparison among classes, a subject's sociometric score was equated by dividing his/her total score by N - 1 (where N = the number of pupils in class used in the final treatment of data.)

Presentation of Findings

At the outset of this presentation of findings it should be pointed out that structures of hypotheses and questions posed in this investigation dictated the kinds of statistical techniques (analysis of co-variance, or *t* test, or Pearson product moment coefficient of correlation) and directions (one-tail test or two-tail test) to be employed. For all "between-groups" hypotheses and all "combined group" questions, class mean scores on each variable were used as the basis for statistical analysis. The justifications for using the class as a unit instead of using individual scores were at least two: (a) Pupils in the same class were subject to the same kind of influence from the teacher over the experimentation period; (b) Class mean scores are usually regarded as more stable than individual scores. Then, the "between-groups" hypotheses were divided into two categories: (i) The hypothesis on experimental attitude, because of its pre- and post-test measure, was analyzed by the technique of analysis of covariance; (b) Five other "between-groups" hypotheses were treated by means of a *t* test on data collected at the end of this study. For all "combined gruup" questions, the correlational technique was employed. Another point that should be made explécit was that .05 level was pre-determined for accepting or rejecting a hypothesis or a question. It was the position of this study that neither interpretations were made to nor implication were drawn from findings not statistically significant at this pre-determined level. However, for the purpose of providing an indication of the degree of statistical non-significance to future researchers who would like to probe into this similar domain, rejected hypotheses and questions are briefly presented with the accepted ones in the same order as they were stated in Chapter I of this thesis.

A. "Between-groups" Hypotheses

A.1. The high experimental group would score higher on experimental attitude than the low experimental group after one semester's exposure to their respective teachers.

Since this hypothesis was designed to have pre- and post-test measure, the analysis of covariance technique was employed to test the difference on their experimental attitude measured by the Pupil Situational Inventory between the high experimental group and the low experimental group. The F ratio was not found to be statistically significant at .05 level. Therefore, this hypothesis was rejected. Class mean scores on experimental attitude (obtained by pupils' indications of the kinds of teachers they would like to have with Dewey's Experimentalism as the frame of reference) measured by the Pupil Situational Inventory for the high experimental group and the low experimental group on pre- and post-test are presented in Table VI)on the next page. A summary of experimental attitude in terms of means and variances on pre- and post-tests for both groups is, also, indicated in Table VII on the next page.

A.2. The high experimental group would score higher on creativity than the low experimental group at the end of the study.

The t value for the difference on creativity between the low experimental group and the high experimental group was not statistically significant at .05 level (onetail test), but at .20 level (one-tail test). Hence, this hypothesis was rejected.

Means and variances on creativity for data collected in January of 1965 for the low experimental group and the high experimental group are given in Table VIII.

TABLE VI

CLASS MEAN SCORES ON EXPERIMENTAL ATTITUDE FOR THE HIGH EXPERIMENTAL GROUP AND THE LOW EXPERIMENTAL GROUP FOR PRE- AND POST-TEST

The Low Experimental Group		The High Experimental Group	
Pre-test	Post-test	Pre-test	Post-test
66	73	69	70
70	76	71	81
63	63	63	71
60	62	68	71
68	74	63	69
66	68	66	71
67	71	67	74
64	67	66	75

The difference on experimental attitude between the low experimental group and the high experimental group by means of analysis of covariance was not statistically significant at .05 level.

TABLE VII

MEANS AND VARIANCES ON EXPERIMENTAL ATTITUDE SCORES ON PRE- AND POST-TEST

	Means		Variances	
	Pre-test	Post-test	Pre-test	Post-test
The Low Experimental Group	65.5	69.3	9.7	26.2
The High Experimental Group	66.6	72.8	7.7	15.1

TABLE VIII

MEANS AND VARIANCES ON CREATIVITY AT THE END OF THE STUDY

	Means	Variances
The Low Experimental Group	12.4	5.7
The High Experimental Group	13.4	2.5

The difference on creativity between the high experimental group and the low experimental group was not statistically significant at .05 level (one-tail test).

A.3. The high experimental group would be more positive in their attitudes toward school than the low experimental group at the end of this investigation.

The t value for testing the difference on school attitude between the high experimental group and the low experimental group was not statistically significant at .05 level (one-tail test), but at .10 level (one-tail test). This hypothesis was, therefore, rejected.

Means and variances on school attitude for data collected in January of 1965 for the low experimental group and the high experimental group are shown in Table IX.on the next page.

A.4.The high experimental group would attain a higher score on sociometric status than the low experimental group at the close of this study.

The t value for testing the difference on sociometric status between the high experimental group and the low experimental group was

TABLE IX

MEANS AND VARIANCES ON SCHOOL ATTITUDE AT THE END OF THE STUDY

	Means	Variances
The Low Experimental Group	36.0	4.6
The High Experimental Group	37.9	5.5

The difference on school attitude between the low experimental group and the high experimental group was not statistically significant at .05 level (one-tail test).

not found to be statistically significant at .05 level (one-tail test), but at .25 level (one-tail test). Therefore, this hypothesis was rejected.

Means and variances on sociometric status for data collected in January of 1965 for both the high experimental group and the low experimental group are indicated in Table X on the next page.

A.5. The high experimental group would perceive their teachers more experimental in attitudes in terms of Dewey's Experimentalism than the low experimental group at the end of this experimentation.

The _t_ value for the difference on pupils' teacher perception between the high experimental group and the low experimental group was found to be statistically significant at .05 level (one-tail test). Hence, this hypothesis was accepted.

TABLE X

MEANS AND VARIANCES ON SOCIOMETRIC STATUS AT THE END OF THE STUDY

	Means	Variances
The Low Experimental Group	18.2	1.3
The High Experimental Group	18.7	1.3

The difference on sociometric status between the high experimental group and the low experimental group was not found to be statistically significant at .05 level (one-tail test).

Means and variances on pupils' teacher perception for data collected in January of 1965 for the high experimental group and the low experimental group are presented in Table XI.

TABLE XI

MEANS AND VARIANCES ON TEACHER PERCEPTION AT THE END OF THE STUDY

	Means	Variances
The Low Experimental Group	67.7	16.8
The High Experimental Group	71.4	14.9

The difference on pupils' teacher perception between the high experimental group and the low experimental group was found to be statistically significant at .05 level (one-tail test).

A.6. There would be difference between the high experimental group and the low experimental group on teacher discrepancy at the close of this study.

The t value for testing the difference on teacher discrepancy between the high experimental group and the low experimental group was not statistically significant at .05 level (two-tail test), but at .10 level (one-tail test).* Hence, this hypothesis was rejected.

Means and variances on teacher discrepancy by using Dewey's Experimentalism as the frame of reference for the low experimental group and the high experimental group are offered in Table XII.

TABLE XII

MEANS AND VARIANCES ON TEACHER DISCREPANCY AT THE END OF THE STUDY

	Means	Variances
The low Experimental group	8.7	3.7
The high Experimental group	7.2	3.7

The difference on teacher discrepancy between the low experimental group and the high experimental group was not statistically significant at .05 level (two-tail test).

B. "Combined group" Questions

B.1. Experimental Attitude

B.1.1. Would pupils' experimental attitude be correlated with their teacher discrepancy?

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*The next level of significance is not available in a two-tail test table.

The negative correlation coefficient of .59 for this question was statistically significant at .01 level. Therefore, these pupils' experimental attitude was significantly and negatively related to their teacher discrepancy.

B.1.2. To what degree would pupils' experimental attitude be related to their creativity?

The correlation coefficient of .82 for this question was statically significant at .01 level. Pupils' experimmntal attitude was, therefore, significantly correlated with their creativity.

B.1.3. What would be the degree of relation between pupils' experimental attitude and their school attitude?

The correlation coefficient of .30 for this question was not statistically significant at .05 level. Hence, these pupils' experimental attitude was not significantly associated with their school attitude.

B.1.4. What degree of correlation existed between pupils' experimental attitude and their sociometric status?

The correlation coefficient of .29 for this question was not statistically significant at .05 level. Therefore, pupils' experimental attitude was not significantly related to their sociometric status.

B.1.5. What would be the degree of correlation between pupils' experimental attitude and their teacher perception?

The correlation coefficient of .84 for this question was statistically significant at .01 level. Therefore, pupils' experimental attitude was significantly related to their teacher perception.

B.2. Teacher Discrepancy

B.2.1. Would there be any relation between pupils' teacher discrepancy and their creativity?

The negative correlation coefficient of .34 for this question was not statistically significant at .05 level. Pupils' teacher discrepancy was, therefore, not significantly related to their creativity.

B.2.2. To what extent was pupils' teacher discrepancy related to their school attitude?

The negative correlation coefficient of .60 for this question was statistically significant at .01 level. Therefore, pupils' teacher discrepancy was significantly correlated with their school attitude in a negative direction.

B.2.3. Was pupils' teacher discrepancy correlated with their sociometric status?

The negative correlation coefficient of .55 for this question was statistically significant at .05 level. Hence, pupils' teacher discrepacny was significantly related to their sociometric status.

B.2.4. What degree of relation existed between pupils' teacher discrepancy and their teacher perception?

A negative correlation coefficient of .81, statistically significant at .01 level, was found for this question. Pupils' teacher discrepancy was, therefore, significantly and negatively related to their teacher perception.

B.3. Teacher Perception

B.3.1. To what extent was pupils' teacher perception correlated with their creativity?

The correlation coefficient of .53 for this question was found to be statistically significant at .05 level. Hence, pupils' teacher perception was significantly associated with their creativity.

B.3.2. What was the degree of relation between pupils' teacher perception and their school attitude?

The correlation coefficient of .51 for this question was statistically significant at .05 level. Therefore, pupils' teacher perception was significantly related to their school attitude.

B.3.3. Was there any relation between pupils' teacher perception and their sociometric status?

The correlation coefficient of .52 for this question was found to be statistically significant at .05 level. Hence, pupils' teacher perception was significantly related to their sociometric status.

B.4. Creativity

B.4.1. To what degree was pupils' creativity associated with their school attitude?

The correlation coefficient of .20 for this question was not statistically significant at .05 level. Pupils' creativity was, therefore, not significantly correlated with their school attitude.

B.4.2. What degree ofrrelation existed between pupils' creativity and their sociometric status?

This question had a negative correlation coefficient of .07 which was not statistically significant at .05 level. Hence, pupils' creativity was not significantly related to their sociometric status in a negative direction.

B.5. School Attitude

B.5.1. Was pupils' school attitude correlated with their sociometric status?

The correlation coefficient of .47 for this question was found to be statistically significant at .05 level. Therefore, pupils' school attitude was significantly associated with sociometric status.

The findings which were statistically significant at the predetermined level as presented in this chapter are briefly reiterated in a summary as follows:

A. "Between-groups" Hypotheses

Among the six hypotheses of this dimension, one was supported by the finding, which was that pupils taught by the eight high experimental teachers perceived their teachers significantly more experimental in attitudes in terms of Dewey's Experimentalism than did pupils taught by the eight low experimental teachers after an equal amount of time of exposure to their respective teachers.

B. "Combined group" Questions

1. Pupils' experimental attitude was found to be significantly related to their creativity, and teacher perception, and to teacher discrepancy in a negative direction.

2. Pupils' teacher discrepancy was significantly and negatively correlated with their school attitude, sociometric status, and teacher perception.
3. Pupils' teacher perception was found to be significantly associated with their creativity, school attitude, and sociometric status.
4. Pupils' school attitude was significantly related to their sociometric status.

CHAPTER VI

INTERPRETATIONS AND IMPLICATIONS

The Chapter presents interpretations of findings of accepted hypothesis and questions, and implications drawn from them as a kind of intellectual stimulation for further research into similar domains or other philosophical schools of thought.

INTERPRETATIONS OF THE STUDY

A. "Between-groups" Hypotheses

Among the six "between-groups" hypotheses one was upheld by the finding statistically significant at .05 level (one-tail test), which was that pupils in the high experimental group did perceive their teachers significantly more experimental in attitudes in terms of Dewey's philosophy of Experimentalism than did pupils in the low experimental group after one semester's exposure to their respective teachers. It might be appropriate to point out that this hypothesis was not designed on a pre- and post-test measure, because at the very beginning of the study pupils in both groups did not know their teachers well enough to rate their own teacher justifiably. Another pertinent point that should be reiterated is that the high experimental group was taught by the eight teachers who had the highest scores among 141 participating teachers on the Experimentalism Scale, and the low experimental group was taught by the eight teachers who had the lowest scores on the Experimentalism Scale. On the basis of this statistically significant finding for this "between-groups" hypothesis, it appears proper to infer that the Experimentalism Scale used to measure teachers' experimental attitude in terms of Dewey's Experimentalism as the cornerstone for all "between-groups" hypotheses might possess some degree of predictive validity, only if the Experimentalism Scale and the Pupil Situational Inventory were used in the same situation. However, when a look is taken at the other four "between-groups" hypotheses, specifically A.1-4, which were not substantiated by findings statistically significant at the predetermined level, precaution would have to be exercised with this kind of inference.

For the purpose of gaining some additional insights into the data collected by the Pupil Situational Inventory so as to shed some, if any, light on rejected "between-groups" hypotheses A.1-4, two major steps were taken. The first major step was divided into two phases: (a) A truncation was applied at the lowest (roughly) 25 per cent and the highest (roughly) 25 per cent of cases on the basis of their pre-tested experimental attitude scores (obtained by pupils' indications of the kinds of teachers they would like to have, with Dewey's Experimentalism as the frame of reference) in both the high experimental group shown in Table XIII on the next page and the low experimental group shown in Table XIV also on the next page for examination in juxtaposition with their post-tested experimental attitude scores and teacher perception scores. (b) A look was taken at the high experimental group and the low experimental group as a whole in regard to their pre-tested and post-tested experimental attitude scores and teacher perception scores at the end of the study, as shown in Table XV on page 65. The second major step was to test statistically the

TABLE XIII

HIGH AND LOW EXTREME CASES IN EXPERIMENTAL ATTITUDE* ON THE BASIS OF THE PRE-TEST FOR THE HIGH EXPERIMENTAL GROUP

Percentage of cases	Mean Score on pre-test	Mean Score on Post-test	Mean Score on Teacher Perception
Upper 22.5	76.2	82.7	77.7
Lower 25.5	56.4	60.7	63.1

*obtained by pupils' indications of the kinds of teachers they would like to have, with Dewey's Experimentalism as the frame of reference.

TABLE XIV

HIGH AND LOW EXTREME CASES IN EXPERIMENTAL ATTITUDE* ON THE BASIS OF THE PRE-TEST FOR THE LOW EXPERIMENTAL GROUP

Percentage of Cases	Mean Score on Pre-test	Mean Score on Post-test	Mean Score on Teacher Perception
Upper 21.2	77.2	80.9	75.5
Lower 25.0	55.7	59.8	61.6

*obtained by pupils' indications of the kinds of teachers they would like to have, with Dewey's Experimentalism as the frame of reference.

TABLE XV

MEAN SCORES ON EXPERIMENTAL ATTITUDE* FOR PRE- AND POST-TEST AND ON TEACHER PERCEPTION AT THE END OF THE STUDY FOR BOTH THE HIGH EXPERIMENTAL GROUP AND THE LOW EXPERIMENTAL GROUP

Group	Mean Score on Pre-test	Mean Score on Post-test	Mean Score on Teacher Perception
High	66.6	72.8	71.4
Low	65.5	69.3	67.7

* obtained by pupils' indications of the kinds of teachers they would like to have, with Dewey's Experimentalism as the frame of reference.

the difference between pupils' pre-tested experimental attitude and their teacher perception at the end of this study (Appendix XIX), and the difference between pupils' post-tested experimental attitude and their teacher perception at the close of this investigation (Appendix XX).

In regard to the first major step, it should be cautioned that the original intent was not to present a partial or a false picture of the study in connection with phase (a) above, because about half of the population was not included in this non-statistical examination. From Tables XIII,XIV, and XV, it appears that at least three general statements could be made:

a. Pupils who wanted highly experimental teachers perceived their teachers as being considerably more experimental in attitudes in terms of Dewey's Experimentalism than did pupils who did not want highly experimental teachers, regardless of the teacher's score on the Experimentalism Scale.

b. High and low experimental teachers, as so designated on the basis of their scores on the Experimentalism Scale, were not perceived as such by their pupils on the basis of their scores given to their teachers on the Pupil Situational Inventory at the close of this study.

C. At the end of this investigation, it appeared that highly experimental youngsters did not have the kinds of teachers sufficiently experimental in attitudes in terms of Dewey's Experimentalism for them, and this indication was true to both the high experimental group and the low experimental group. However, for pupils who were low in experimental attitude as measured by the Pupil Situational Inventory in both groups, this trend seemed to reverse in the sense that the teachers they had were slightly more experimental in attitudes than what they wanted. This statement was specifically inferred from Tables XIII and XIV.

The results of the analyses for the second major step are stated as follows: (a) The investigator was aware that it might not be appropriate to compare pupils' pre-tested experimental attitude with their teacher perception at the end of this study. Nevertheless, it was felt that such a comparison might furnish some kind of information pertinent to the objective of securing some insights into the statistical non-significance at the pre-determined level of "between-groups" hypotheses A.1-4. Therefore, class mean scores on pupils' pre-tested experimental attitude and post-tested teacher perception (Appendix XIX) were contrasted. It was discovered that thirteen out of sixteen classes (both the high experimental group and the low experimental group combined) were lower in experimental attitude (their indications of the kinds of teachers they wanted with Dewey's Experimentalism as the frame of reference) at the beginning of the study than the kinds of teachers that they perceived they had at the end of this study. A _t_ test* was applied to the difference between pupils' pre-tested experimental attitude and their post-tested teacher perception. The _t_ value was statistically significant at .01 level (two-tail test). Therefore, pupils were significantly lower in experimental attitude at the beginning of this study than the kinds of teachers they perceived they had at the close of this investigation, in spite of what scores their teachers had on the Experimentalism Scale. (b) Similarly, an examination was also made to the class mean scores on pupils' post-tested expefimental attitude (their indications of the kinds of teachers they would like to have, with Dewey's Experimentalism as the frame of reference) and teacher perception with the high experimental group and the low experimental group combined. Interestingly enough, thirteen out of sixteen classes (Appendix XX) indicated on the Pupil Situational Inventory that they wanted teachers who were more experimental in attitudes in terms of Dewey's Experimentalism than the kinds of teachers they perceived they had. A t test was made to test the difference between pupils' post-tested experimental attitude and their teacher perception. The t value was found to be statistically significant at .05 level (two-tail test). In other words, teachers used in this study were not experimental enough in attitudes for these pupils at the end of this investigation, regardless of their scores on the Experimentalism Scale, if both the Experimentalism Scale and the Pupil Situational Inventory were used in the same setup.

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*G.A. Ferguson, Statistical Analysis in Psychology and Education, (New York:McGraw-Hill, 1959), pp.138-139.

These analyses seemed to shed some light on why four "between-groups" hypotheses, namely, A.1-4, were not upheld by findings statistically significant at the pre-determined level. In a word, pupils in both the high experimental group and the low experimental group, according to their indications in the Pupil Situational Inventory, were more experimental in attitudes than what they perceived their teachers was at the end of this study.

Apart from the above examination and analyses, at least three conjectures hinging upon the objective stated earlier could be made, two of which were regarded as limitations of the study. (a) Since there was statistically significant difference on pupils' teacher perception at the close of this experimentation between the high experimental group and the low experimental group after one semester's exposure to their respective teachers, it was postulated that these youngsters' values and beliefs might be less amenable to change than their perceptions were. (b) The experimentation period of this study was only one semester which might not be sufficient for these two groups of teachers to produce a statistically significant impact upon their respective pupils' values and beliefs in terms of Dewey's Experimentalism. It is generally accepted that to modify an individual's beliefs and values or to orient one to a particular school of philosophy, like what this study was planned to achieve, is a task that could not possibly be accomplished over a period of one semester. A task of this nature might call for several years or even a decade of concerted effort in order to bring about really significant changes, provided that the effect of other variables impinging upon the variable manipulated were reduced to a minimum. (c) Some possibly germane variables of the teachers involved in this study, such as, personality, college achievement, college professors' recommendation, and the like, were not held constant in this study. Possibly these variables might have suppressed their impact upon their respective pupils with respect to experimental attitude in terms of Dewey's Experimentalism. Nevertheless, these are some of the plausible suggestions for explaining the rejected hypotheses A.1-4.

B. "Combined group" Questions

B.1. Experimental Attitude

B.1.1. Would pupils' experimental attitude be correlated with their teacher discrepancy?

The negative correlation coefficient of .59 for this question was found to be statistically significant at .01 level. What this statistically significant finding could suggest was that high experimental pupils tended to have low teacher discrepancy in terms of Dewey's Experimentalism, and vice versa. At least one plausible explication could be made to this finding, that is, highly experimental pupils might be flexible and low experimental pupils might be rigid in their approaches to teacher-pupil relationships.

B.1.2. To what degree would pupils' experimental attitude be related to their creativity?

This question was given a correlation coefficient of .82 which was statistically significant at .01 level. What this finding showed was that pupils high in experimental attitude tended to be high in creativity, and vice versa.

B.1.5. What would be the degree of correlation between pupils' experimental attitude and their teacher perception?

The correlation coefficient of .84 for this question was found to be statistically significant at .01 level. This finding indicated that pupils high in experimental attitude expressed in terms of the kinds of teachers that they would like to have with Dewey's Experimentalism as the frame of reference had a tendency to perceive their teacher as being high in experimental attitude, and vice versa.

B.2. Teacher Discrepancy

B.2.2. To what extent was pupils' teacher discrepancy related to their school attitude?

A negative correlation coefficient of .60 was given to this question, statistically significant at .01 level. What this finding appeared to show was that pupils who were high in teacher discrepancy were most likely to be low in their attitudes toward school, and vice versa.

B.2.3. Was pupils' teacher discrepancy correlated with their sociometric status?

The negative correlation coefficient of .55 for this question was found to be statistically significant at .05 level. One interpretation that could be made to this finding was that pupils having high teacher discrepancy tended to be low in being accepted by their peers in school, and vice versa.

B.2.4. What degree of relation existed between pupils' teacher discrepancy and their teacher perception?

A negative correlation coefficient of .81 was indicated for this question, statistically significant at .01 level. This finding could be interpreted to mean that pupils who were high in teacher discrepancy tended to perceive their teacher as being low in experimental attitude expressed in terms of the kinds of thachers pupils perceived they had, and vice versa.

B.3. Teacher Perception

B.3.1. To what extent was pupils' teacher perception correlated with their creativity?

The correlation coefficient of .53 for this question was found to be statistically significant at .05 level. What this result showed was that pupils high in teacher perception in terms of experimental attitude tended to be high in creativity, and vice versa.

B.3.2. What was the degree of relation between pupils' teacher perception and their school attitude?

The correlation coefficient of .51 for this question was statistically significant at .05 level. This finding could be interpreted to mean that pupils high in teacher perception in terms of experimental attitude had a tendency to be high in positive attitude toward school, and vice versa.

B.3.3. Was there any relation between pupils' teacher perception and their sociometric status?

A correlation coefficient of .52 was found for this question, statistically significant at .05 level. One interpretation that could be made to this result was that pupils who were high in teacher perception in terms of experimental attitude seemed to be high in being accepted by their peers in school, and vice versa.

B.5. School Attitude

B.5.1. Was pupils' school attitude correlated with their sociometric status?

The correlation coefficient of .47 for this question was found to be statistically significant at .05 level. What this finding indicated was that pupils who were high in their positive attitude toward school, also, tended to be high in being accepted by their peers in school.

LIMITATIONS OF THE STUDY

1. There were four instruments administered simultaneously to these youngsters at the final collection of data. It was anticipated that it was not possible to use the whole Creative Thinking test on account of the large amount of time called for. Consequently, this Creative Thinking test had to be abridged. This abridgment of the test might have produced some effect upon the "between-groups" hypothesis on creativity.

2. This study might be more desirable if it was limited to a particular grade of either fourth, fifth, or sixth grade instead of 4th-6th grades. This is because a particular grade would help to equate the grade difference and to minimize the age difference.

3. An increase of the number of subjects in the pilot study instead of 82 subjects might strengthen the study in phase of an item analysis for the Pupil Situational Inventory.

4. If some of these variables, such as, the number of boys and girls, I.Q., school achievement, and the like, were equated, it would add strength to this study.

5. This study would have been strengthened, if three other measured, namely, Creative Thinking, School Attitude Scale, Peer Choice Rating, were also pre- and post-tested.

6. It could have added strength to this investigation, if the experimentation period was extended to one academic year at least instead of one semester. This lengthening of time would assume that teachers might produce a greater impact upon their respective pupils over a

longer period of time.

7. It might have strengthend this study if some variables of teachers involved, such as, personality, college achievement, and the like, were controlled in the experimentation.

IMPLICATIONS OF THE STUDY

1. Teacher Education

Several findings of the study seem to bear upon teacher education program, the basic one of which is that pupils taught by the eight high experimental teachers did perceive their teachers significantly more experimental in attitudes in terms of Dewey's Experimentalism than did pupils taught by the low expetimental teachers after one semester's exposure to their respective teachers. (High experimental teachers and low experimental teachers were designated on the basis of their scores on the Experimentalism Scale.) In other words, the eight high experimental teachers did produce a statistically significant impact upon their pupils in teacher perception with Dewey's Experimentalism as the frame of reference, as compared to the eight low experimental teachers upon their pupils at the end of this experimentation. This finding seems to establish the fact that there is a need for a course on Dewey's philosophy of Experimentalism in teacher education. Significant correlation coefficients between pupils' teacher perception and their experimental attitude (obtained by their indications of the kinds of teachers they would like to have, with Dewey's Experimentalism as the frame of reference), creativity, school attitude, sociometric status, and the negative correlation coefficient between teacher perception and teacher discrepancy appear to lend additional support to the above contention.

2. Alleviating the Dropout Problem

It was discovered that these pupils' teacher discrepancy by using Dewey's Experimentalism as the reference point was significantly and negatively associated with their attitude toward school. This finding appears to suggest that if we could provide the kinds of teachers in terms of Dewey's Experimentalism in this context for the purpose of minimizing their teacher discrepancy, then we might be able to maximize their positive attitudes toward school. However, it should be cautioned that more experimentally oriented teachers were not necessarily desirable for all pupils, as discovered in this study, if we wanted to reduce pupils' teacher discrepancy. It was found out that there were teachers ranging from low to high agreement with Dewey's philosophy of Experimentalism, as measured by the Experimentalism Scale, and that there were more experimentally oriented as well as less experimentally oriented pupils, as measured by the Pupil Situational Inventory. Both the Experimentalism Scale and the Pupil Situational Inventory were developed on the same theoretical framework for Dewey's Experimentalism. In other words, if we wanted to maximize these pupils' positive attitudes toward school through the means of reducing their teacher discrepancy with Dewey's Experimentalism as the frame of reference, then we would have to match more experimentally oriented teachers for more experimentally oriented pupils, land vice versa. By so doing, could we probably ameliorate the dropout problem. However, this kind of matching arrangement becomes a problem of practicality and might sound like the end justifying the means.

3. School Curriculum

One of the findings was that pupils' experimental attitude (obtained by their indications of the kinds of teachers they would like to have with Dewey's Experimentalism as the frame of reference) was highly correlated with their creativity, which is an object of pursuit today. A glance at what has been going on in the revision of school curriculum would suffice the evidence, for example, Biological Science Study Committee, Physical Science Study Committee, Chemical Bond Approach, and the like, at the secondary school level, new Mathematics, new approach to teaching science at the elementary level, new approach to instructing social studies at both elementary and secondary levels, and many others. All these seem to be catching with the spirit of an experimentalist in the sense that school curricula are planned in a manner appropriate for pupils to become actively involved, both mind and body. The concern here is not to evaluate the new school curricula; it is merely to point out that new school curricula tend to stress the giving to pupils of more opportunities to experiment or to discover themselves rather than the telling to them by their teacher as to what is to be done specifically. In Dewey's terms, these new school curricula tend to emphasize on the participant theory of knowledge instead of the spectator's theory of knowledge. Academicians of various disciplines or areas of study, curriculum specialists, and school teachers in their joint effort to revamp the curricula might not be aware of a philosophical rationale underlying their enterprise, which was systematized and expounded by John Dewey several decades ago. What has been stated above is not intended to imply that this group of scholars should be disciplined in Dewey's Experimentalism. The purpose here is to point out this intellectual congruence. However, there are some other disciplines or areas of study which have not thus far caught hold of an experimentalist's spirit in the sense that they have not attempted to structure their fields of study in such a way that proffers more opportunities for pupils to experiment. Hence, it is the position here that those disciplines or areas of study, for which attempt has been made to restructure the program on an experimental approach, necessitate continuing effort in augmenting this approach to the maximum possible, and that those disciplines or area of study, for which no attempt has been made toward an experimentalist's approach, call for such steps to be taken.

There is another implicit assumption, that is, a school curriculum structured in such a way that maximizes opportunities for pupils to experiment would eventually make them become more experimentally oriented than a school curriculum intended for rote memory, or mainly through a teacher's verbal presentation. If we accept this assumption, then we ought to structure our school curricula in a compatible way. To what extent a school curriculum structured in this manner would pay off depends upon at least three kinds of tasks: (a) the kinds of objectives that we seek to accomplish -- to cultivate reflective thinking, or to ask them to rote-memorize specific facts and information, (b) the extent to which we could structure a school curriculum that could maximize opportunities for pupils to experiment, land (c) the extent to which

which we could develop the kinds of instruments which are reliable, valid, objective, and impartial to measuring these two differently oriented objectives. Supposing that the first task is a matter or personal decision-making, in order to give satisfactory answers to the last two tasks, it would call for a systematic investigation including inherently antecedent steps that need to be taken in each of these two tasks.

A third implication is that if a school curriculum is geared to the interests and initiative of pupils, they would develop a more positive attitude toward school, as contrasted with a school program not organized around their interests. If this positive school attitude was established, better school achievement including both behavioral and scholatic attainment could possibly be expected to result.

4. Appraising Teacher Competence

It was discovered that pupils' teacher discrepancy was significantly and negatively associated with their experimental attitude, school attitude, sociometric status, and teacher perception. These findings tend to indicate the importance of the role played by pupils' teacher discrepancy upon pupils themselves in school. Since our focus in school is the development of the child, it becomes proper to use his rating of the teacher from a particular philosophical position as a criterion to evaluate the teacher competence.

Another implication that this study has in this connection is that the technique of using pupils' rating of their teacher as a criterion to judge a teacher's competency has been effected for several decades.* Nevertheless, what was done to appraise a teacher's competence was from a general standpoint in terms of personal volition, if not caprice, of an individual instead of from a particular philosophic school of thought. The general approach of teacher appraisal is usually too vague, broad, and consequently imprecise to achieve the purpose. Evaluation of a teacher's competence from a certain philosophical position has a specific and concise frame of reference as criteria for judgment.

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* George S.C. Cheong and M.Vere DeVault, op.,cit.

5. Social Acceptability

Pupils' teacher discrepancy was found to be significantly and negatively associated with their sociometric status in the sense that pupils having high teacher discrepancy appeared to be low in being accepted by their peers in schools. If social acceptability is accepted as a desirable personality trait in a democratic society, then we ought to provide the kinds of teachers on the basis of matching teachers for pupils with a view to minimizing their teacher discrepancy. These kinds of teachers would be able to harness the class to function cooperatively as an integral unit, which is the training ground for cooperation with others in a larger society. Again, this kind of matching teachers for pupils becomes a problem of feasibility.

6. A Stimulant for Further Research

What has been stated above in this section on "implications of the study" relates to the acceptance of Dewey's philosophy of Experimentalism as important for American education. However, it is not the intent here to negate the places in American education of other philosophic schools of thought, such as, Classical Realism, Liberal

Christian Idealism, logical positivism, Existentialism, and the like. As a matter of fact, one of the original intents of this investigation is to stimulate men of other philosophic schools to take similar steps as those taken in this study, if regarded as appropriate to them, and to provoke people who wish to probe Dewey's philosophy of Experimentalism from other avenues.

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APPENDIX I

Birth Date ____________________ No. ____________
Sex __________ No. of yrs. teaching experience __________

PERSONAL BELIEFS INVENTORY

FORM A

This is a study of what people believe about a number of basic philosophical questions. The best answer to each statement below is your personal belief. Many different and opposing points of view are presented here. You will find yourself believing some of the statements, not believing some, and uncertain about others. Whether you believe or do not believe any statement, you can be sure that many people feel the same as you do.

Mark each statement in the left margin by writing 1, 2, 3, or 4, 5, 6, depending on how you feel in each case.

1. I agree very much	4. I disagree a little
2. I agree on the whole	5. I disagree on the whole
3. I agree a little	6. I disagree very much

_____ 1. Man doesn't have a "spirit" which is separable from his body and the material world.

_____ 2. What is right and good at one time and place may not be right and good for all times and places.

_____ 3. The mind is a group of "contents" which come from having certain material presented to it.

_____ 4. All "truths" are relative.

_____ 5. What is morally right and wrong should be decided on the basis of scientific inquiry.

_____ 6. The mind if formed from without, as one molds and shapes a piece of clay.

_____ 7. To know something is to know the inner nature of things, i.e., as they really are prior to investigation.

Mark each statement in the left margin by writing 1, 2, 3, or 4, 5, 6, depedding on how you feel in each case.

1. I agree very much
2. I agree on the whole
3. I agree a little
4. I disagree a little
5. I disagree on the whole
6. I disagree very much

_____ 8. Man's destiny is in the hands of a supernatural power.

_____ 9. Practice is subordinate to knowledge, merely a means to it.

_____10. The minds turn outward to truth; the emotions turn inward to considerations of personal advantage and loss.

_____11. Man's primitive impulses are neither good nor evil, but become one or the other according to the objects for which they are employed.

_____12. You can never prove that any fact is unconditionally true.

_____13. Questions of value and moral judgement ought to be open to experimentation and scientific inquiry.

_____14. Change is a basic characteristic of nature, and man has some measure of control over this change by using his intelligence.

_____15. Learning is an application of mental powers to things to be known.

_____16. Nothing is or can be unchanging, absolutely certain.

_____17. Truth exists ready-made somewhere; the task of the scholar is to find it.

_____18. Questions of values and morals should be taken out of their traditional supernatural setting and put in a naturalistic setting.

_____19. Knowledge is truth to be accepted, held,1land treasured for its own sake.

_____20. Learning is the sum of impressions made on sthe mind as a result of presentation of the material to be known.

Birth Date __________ No. ______________

Sex ____________ No. of yrs. teaching experience ____________

TEACHER PRACTICES INVENTORY

FORM A

This is a study of what people believe is good teaching. Each statement below describes teacher practice -- something a teacher might do in a classroom. Many different and opposing kinds of teacher pratices are presented here. As you read these statements, you will find yourself agreeing with some, disagreeing with some, and uncertain about others. The best answer to each statement is your personal belief or opinion.

Mark each statement in the left margin by writing 1, 2, 3, or 4, 5, 6, depending on how you feel in each case.

1. I agree very much	4. I disagree a little
2. I agree on the whole	5. I disagree on the whole
3. I agree a little	6. I disagree very much

____1. Asks the kind of questions that students should be able to answer if they have studied the lesson.

____2. Asks students to work on their own problems, rather than something made a problem only for the purpose of conveying instruction in some school subject.

____3. Encourages students to suggest what might be done -- to make "hypothetical leaps" into the unknown or untested.

____4. Permits students to go ahead with plans based on foresight, observation, and consideration of several alternatives -- even when sure their judgement is mistaken.

____5. Uses a set of standard to judge the work of all students in the class.

____6. Provides a model to show students exactly what their work should be like when it is finished.

____7. Once work has begun, insists that students remain in their places and concentrate on the task at hand.

____8. When one student fails to answer a question, asks another student to supply the correct answer.

Mark each statement in the left margin by writing 1, 2, 3, or 4, 5, 6, depending on how you feel in each case.

1. I agree very much
2. I agree on the whole
3. I agree a little
4. I disagree a little
5. I disagree on the whole
6. I disagree very much

____ 9. Makes the acquisition of knowledge and skills the center of students' attention and effort.

____10. Lets students become involved in ugly or distressing aspects of subjects.

____11. Gives students a wide choice in how they answer questions.

____12. Gives students achance to discover by experiencing actual effects whether their choice of this rather than that ideal was a judicious one.

____13. Makes a direct presentation of the subject matter to be covered.

____14. Gives students opportunity to select facts and information which they consider appropriate to the question.

____15. Has students compare the value of alternative courses of action and pass judgement on their relative desirability.

____16. Asks the students to help decide when questions have been satisfactorily answered.

____17. Focuses attention on what the students do or say, rather than on what the teacher does or says.

____18. Motivates students to greater intellectual effort by rewarding them with grades, marks, prizes, or privileges.

____19. Usually has all students working on the same page of the same book at the same time.

____20. Calls for the undivided attention of the group and scolds those who do not respond.

Birth Date ______________ No.__________

Sex _________ No. of yrs. teaching experience ___________

PERSONAL BELIEFS INVENTORY

FORM B

This is a study of what people believe about a number of basic philosophical questions. The best answer to each statement below is your personal belief. Many different and opposing points of view are presented here. You will find yourself believing some of the statements, not believing some, and uncertain about others. Whether you believe or do not believe any statement, you can be sure that many people feel the same as you do.

Mark each statement in the left margin by writing 1, 2, 3, or 4, 5, 6, depending on how you feel in each case.

1. I agree very much	4. I disagree a little
2. I agree on the whole	5. I disagree on the whole
3. I agree a little	6. I disagree very much

____1. There is no spiritual realm which lies beyond man's experience in the natural world.

____2. A statement of fact may be both true and untrue depending on the standpoints and conditions of the observations.

____3. The mind possesses faculties for remembering, imagining, reasoning, willing, and so forth, which are developed by exercise and discipline.

____4. What something may be when totally independent of any observer or frame of reference is a scientifically meaningless question.

____5. The use of the scientific method can be extended to solve the problems of men in the area of values and moral judgments.

____6. The senses and muscles are merely external inlets and outlets of the mind.

____7. Reaching a condition in which there were no more problems would be the ideal life.

____8. Man's destiny is determined by circumstances of nature which are beyond his control.

Mark each statement in the left margin by writing 1, 2, 3, or 4, 5, 6, depending on how you feel in each case.

1. I agree very much	4. I disagree a little
2. I agree on the whole	5. I disagree on the whole
3. I agree a little	6. I disagree very much

____ 9. Knowledge is the result of theoretical insight on the part of scholars.

____10. In the absence of a moral code supported by absolute authority bodily appetite and passion overpwers intelligence.

____11. Man's choices are good only if they prove successful in helping him live with some degree of security and equilibrium in the world of nature.

____12. Knowldge is artificial and ineffective in the degree in which it is merely presented as truth to be acquired and ppssessed for its own sake.

____13. The nature of a thing is determined by what it does, or can be used for; it is what it becomes with intelligent use.

____14. Man is capable of managing his own destiny in an understandable and predictable natural world.

____15. The ends and laws which should regulate human conduct have been determined by the superior intelligence of an ultimate Being.

____16. Thereccan be no final, absolute ends to which all men aspire.

____17. Knowledge is the sum total of what is known, as that is handed down by books and learned men.

____18. What is morally right and wrong ought to be decided on warranted evidence -- the findings of empirical science.

____19. "Mind" is purely intellectual and cognitive; bodily activity is an irrelevant and intruding physical factor.

____20. Man gains knowledge by having things impressed upon his mind.

Birth Date ______________ No. ______________

Sex ______________ No. of yrs. teaching experience __________

TEACHER PRACTICES INVENTORY

FORM B

This is a study of what people believe is good teaching. Each statement below describes teacher practice -- something a teacher migh do in a classroom. Many different and opposing kinds of teacher practices are presented here. As you read these statements, you will find yourself agreeing with some, disagreeing with some, and uncertain about others. The best answer to each statement is your personal beliefs or opinion.

Mark each statement in the left margin by writing 1 , 2, 3, or 4, 5, 6, depending on how you feel in each case.

1. I agree very much	4. I disagree a little
2. I agree on the whole	5. I disagree on the whole
3. I agree a little	6. I disagree very much

____1. Gives students a free rein in devising and inventing proposals for what might be done to clear up troublesome situations.

____2. Makes students emphatically aware that they are here to study and learn.

____3. Limits physical activities to the gym or the playground.

____4. Faithfully follows a planned schedule in order to get in the number of minutes each week allotted to each subject in the curriculum.

____5. Frequently asks students to choose among several alternatives.

____6. Urges students to put everday things to uses which have not occurred to others.

____7. Allows students to move freely about the room while engaged in purposeful activity.

____8. Gives students a number of starting places and a number of different ways of getting at what is to be done.

Mark each statement in the left margin by writing 1, 2, 3, or 4, 5, 6, depending on how you feel in each case.

1. I agree very much
2. I agree on the whole
3. I agree a little
4. I disagree a little
5. I disagree on the whole
6. I disagree very much

____9. Insists that students face up to the realities of unpleasant predicaments and plights they get themselves into.

____10. Quickly tells students whether their answers are "right" or "wrong".

____11. Shows students the most economical and efficient way to get a job done, and expects them to do it pretty much that way.

____12. Provides approximately the same materials for each student in the class.

____13. Encourages students to adventure into "deep water," to tackle problems that appear to be "over their heads."

____14. Sticks to questions which can be answered by looking in the textbook or other references readily available in the school.

____15. Tells students where to start and what to do to accomplish the task at hand.

____16. Accepts material in the approved textbook as a reliable measure for the appropriateness of information brought in by studnets from other sources.

____17. Organizes learning around questions posed by the teacher or the textbook.

____18. Engages students in dramatizations, music, art, and other creative activitiess

____19. Encourages students to put their suggestions to a test with such remarks as "You'll never know unless you try it."

____20. Makes "doing something" with a thing, rather than the thing itself, the center of student's attention.

APPENDIX II[*]

II. Beliefs concerning educational practices which are in agreement and disagreement with Experimentalism.

A. Agreement implies beliefs in the continuity of subject matter and method, which expressed in the essential features of reflective thinking.

1. Situation of experience
2. Problem
3. Initial hypothesis
4. Collection of data
5. Reasoned hypotheses
6. Experimental testing
7. Conclusion

B. Disagreement implies belief in the dualism of subject matter vs. method, which is expressed in Dewey's list of "some evils in education that flow from the isolation of method from subject matter."

1. Neglect of direct experiences
2. Reliance upon extrinsic motivation
3. Makes learning a direct and conscious end in itself
4. Follows the prescribed steps of an established method
5. Imposes a general method for all alike.

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[*] Brown, *op.*, *cit*. pp. 52-52.

APPENDIX III

PUPILS SITUATIONAL INVENTORY

____1. Miss F.X. tells her children that even though some problems seem to be difficult, they should try and keep on trying.

____2. Mrs. U.P. wants her children to do something to a thing, and then see what happens.

____3. Miss P.B. often asks her children to make guesses and try them out.

____4. Miss B.L. does not worry about controlling the class. She is interested in giving them things to do which they are really interested in doing.

____5. Mrs. G.S. keeps telling her children that they are in school to study and learn.

____6. Miss G.Y. shows her children the quickest way to solve a problem and then she expects them to do it exactly that way.

____7. Miss B.P. is only interested in giving her children facts and information.

____8. Miss A.L. changes her way of teaching often because she believes everything in the world changes constantly.

____9. Miss H.K. likes to do one example about simple fractions on the board, and then she asks her children to work on all problem in the Arithmetic book.

____10. Miss J.T. lets her children move about freely only in the gym or on the playground.

____11. Mrs. Q.B. likes her children to decide what they want to do, and what they want to work on.

____12. Mrs. B.A. tells her class that what is good and what is bad should not be questioned.

____13. Miss A.D. wants her children to discuss only those things that she has planned for them to discuss.

____14. Miss P.A. likes her children to try to make suggestions about how to solve the problems they are working on.

____15. Mr. Q.N. told his class to study chapter five of their social studies book and then to answer all questions at the end of the chapter.

____16. Mrs. K.I. is interested in giving her children a wide choice in how they answer questions.

____17. Mr. A,E. is interested in giving his children something to do, not something to remember.

____18. Miss R.P. usually tells all her children to work on the same page of the same book at the same time.

____19. Mr. Q.D. gave his children a problem to work on, land told them when they were finished, their answers should be exactly like the one that he had in mind.

____20. Miss A.P. says to her children that they should never question what is right and what is wrong.

____21. Miss Q.E. lets her children move about the classroom to discuss their study problems.

____22. Miss W.Q. is mostly interested in giving lots of information o to her children, and wants them to listen attentively in order to remember what she says.

____23.Miss A.V. likes her children to repeat after her and do things in exactly the same way as she does.

____24. Miss B.H. tells her children that they are in school to obey and to accept what she says without asking questions.

____25. Miss D.B. is interested in telling her children exactly what to do and where to start.

____26. Mrs. E.W. likes to tell her class that there are usually many different ways to answer the same question.

____27. Miss A.F. is interested in seeing her children active and doing something wibh their hands and bodies as well as their minds.

____28. Mrs. L.W. asks her children to compare things first in order to decide which one they think is best.

____29. Miss H.B. tells her children that hse likes them to use the same way to do the same thing all the time.

____30. Miss C.P. does not care whether or not the facts and information she gives children will change their way of doing things.

____31. Miss P.D. often says to her children, "If you try your own ideas, you might get into trouble."

____32. Miss F.K. wants her children to do only those things that she asks them to do in school.

____33. Miss B.S. likes her children to try to solve Arithmetic problems in different ways.

____34. In teaching a unit on "sound", Mrs. A.O. asked her children to find out what they knew about sound and then to do some experiments about it in order to prove what they already knew or to understand more about it.

____35. Miss A.K. often says to her class, "You must do exactly what I tell you to do. Then you will not make any mistake."

____36. Miss K.U. follows her class time-table very strictly and often tells her children to stop discussing one topic right away, when she thinks it is time to begin something else.

____37. Miss A.R. uses many examples, lsuch as, apples and cakes, when she teaches simple fractions in Arithmektic.

____38. Miss T.S. asks her children to choose things they work on together.

____39. Miss J.K. likesto give her children a chance to find out why one choice is better than another.

____40. Miss A.Y. expects her children to find out what she wants, and what will please her.

____41. Mr. X.Z. gives his class questions which can be answered only by looking them up in school bookd

____42. Miss B.D. likes her children to deal with something on their own in order to really understand it.

____43. Miss W.M. told her class that she could never put anything into their minds if they didn't want to learn themselves.

____44. Miss P.Q. often asks questions that the children can answer only if they have studied the lesson.

____45. Miss A.Q. is interested in her children's change of behavior after they have learned something.

____46. Miss T.G. often says to her class,"Children, if you want to know how to get things done quickly, the best way is to memorize what you read, and to follow exactly what the book tells you to do."

____47. Miss B.K. likesher children to be curious, and she encourages them to go ahead to find out what they don't know.

____48. Miss E.X. often tells her children that if they don't study hard they will not get good grades or marks.

____49. Mr. P.H. gives most of his attention to what his children do or say.

____50. Miss B.E. likes to give her children a chance to discover their own mistakes.

____51. Miss G.A. tells her children that hse can make them all the kind of people that she wants them to be.

____52. Miss A.G. tells her class that whatever they bring to school from outside must agree with what the textbook says.

____53. Miss A.T. likes her children to work on theings in school which they find insteresting outside of school.

____54. Miss R.H. usually says to her class, "Children, you will never know whether an idea is good or bad until you have tried it."

____55. Miss B.G. is much interested in her children's questions and asks them to find out what they know and what they do not know about these questions.

____56. Miss F.V. tells her children to try to use everyday things in ways they have not used them before.

____60. When Miss D.J. teaches her children anything, she likes them to begin with their past experiences and then asks them what they will do with it in the future.

____58. Mrs. S.F. asks John a question in class, but John does not know the answer. She quickly asks Mary, and Mary doesn't know the answer either. Then she constinues to ask many others in class until she gets the right answer.

answer

____59. Miss A.W. tells her children to examine problems carefully before they begin to work on them.

____60. Miss P.M. likes her children to help decide when a question has been answered as best as can be.

____61. Mrs. A.E. gives her children many chances to take part in drama, art, and music.

____62. Miss A.A. likes her children to play with their own ideas so that they can come to their own discovery at the end.

APPENDIX IV*

Dear Professor

The attached inventory, designated for children grades four through six, comprises some of the myriad number of situations or examples to depict what Dewey's philosophy of Experimentalism is _for_ or _against_, in the light of Dr. Brown's theoretical framework in his doctoral dissertation, plus some items developed through my personal interpretation of Dewey's work, essentially, _Democracy and Education_, _The Quest for Certainty_, and _Experience and Education_. Since children at this range of grades might not have developed some of these philosophic concepts, it appears difficult, if not impossible, to approach these concepts directly by quoting Dewey's original words. I appreciate very much your indication in the left margin by writing a _positive_ mark if you think an item agrees with Dewey's philosophy of Experimentalism, a _negative_ mark if you think an item disagrees with Dewey's philosophy of Expetimentalism, or a _zero_ mark if you think you are uncertain as to whether or not an item agrees or disagrees with Dewey's philosophy of Experimentalism.

Thank you very much.

Respectfully yours,

Sd. George Cheong.

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*Appendix III was used for judges' rating with this rating instructions.

APPENDIX V

Dear

I would appreciate very much your categorizing both positive and negative items in respective envelopes, in the light of categories developed by Dr. Brown in his dissertation dealing with Dewey's philosophy of Experimentalism. (A brief explication of each category in both positive and negative aspects was given to each categorizer verbally.) If you think that an item belongs to more than one of the given categories in Brown's theoretical framework, or that an item does not belong to any of these given categories at all, or that an item belongs to only one of the categories, there are spaces for your indications in a manner that you regard as appropriate. I would be obliged if you would put down any suggestions or comment that you might have in connection with the process of categorization, specifically, the general impression that you might have after you have completed the categorization, with a view that your comment might be incorporated into the study.

Thank you.

Sincerely yours,

Sd. George Cheong.

This sheet is for categorizing POSITIVE items. Please put down the item No. in one the following categories.

I. Situation of experience ______________________________

II. Problem ______________________________

III. Initial hypotheses ______________________________

IV. Collection of data ______________________________

V. Reasoned hypotheses ______________________________

VI. Experimental testing ______________________________

VII. Conclusion ______________________________

If you think that an item belongs to more than one the above categories, please put down the item No. and its categories.

____

If you think that an item does not belong to any of the above categories, please write down the item No.

____

Your comment please:

This sheet is for categorizing NEGATIVE items. Please put down the item No. in one of the following categories.

I. Neglect of direct experience ______________________________

II. Reliance upon extrinsic motivation ______________________________

III. Makes learning a direct and conscious end in itself ______________________________

IV. Follows the prescribed steps of an established method ______________________________

V. Imposes a general method for all alike ______________________________

If you think that an item belongs to more than one of the above categories, please put down the item No. and its categories. ______________________________

If you think that an item does not belong to any of the above categories, please write down the item No. ______________________________

Your comment please:

APPENDIX VI

PUPIL SITUATIONAL INVENTORY

1. Mrs. U.P. wants her children to do something to a thing, and then see what happens.

2. Miss P.B. often asks her children to make guesses and try them out.

3. Miss G.Y. shows her children the quickest way to solve a problem and then she expects them to do it exactly that way.

4. Miss B.P. is only interested in giving her children facts and information.

5. Miss J.T. lets her children move about freely only in the gym or on the playground.

6. Mrs. B.A. tells her class that what is good and what is bad should not be questioned.

7. Miss A.D. wants her children to discuss those things that she has planned for them to discuss.

8. Miss P.A. likes her children to try to make suggestions about how to solve the problems they are working on.

9. Mr. Q.H. told his class to study chapter five of their social studies book and then to answer all questions at the end of the chapter.

10. Mrs. K.I. is interested in giving her children a wide choice in how they answer questions.

11. Mr. A.X. is interested in giving his children something to do, not something to remember.

12. Miss R.P. usually tells her children to work on the same page of the same book at the same time.

13. Mr. Q.D. gave his children a problem to work on, and told them when they are finished, their answers should be exactly like the one that he had in mind.

14. Miss A.P. says to her children that they should never question what is right and what is wrong.

15. Miss Q.E. lets her children move about the classroom to discuss their study problems.

16. Miss A.V. likes her children to repeat after her and do things in exactly the same way as she does.

17. Miss B.H. tells her children that they are in school to obey and to accept what she says without asking quesions.

18. Miss P.B. is interested in telling her children exactly what to do and where to start.

19. Mrs. E.W. likes to tell her class that there are usually many different ways to answer the same question.

20. Miss A.F. is interested in seeing her children active and doing something with their hands and bodies as well as their minds.

21. Miss H.B. tells her children that she likes them to use the same way to do the same thing all the time.

22. Miss C.P. does not care whether or not the facts and informaton she gives children will change their way of doing things.

23. Miss P.D. often says to her children, "If you try your own ideas, you might get into trouble."

24. Miss F.K. wants her children to do only those things that she asks them to do in school.

25. Miss A.K. often says to her class, "You must do exactly what I tell you to do. Then you will not make any mistake."

26. Miss K.U. follows her class time-table very strictly and often tells her children to stop discussing one topic right away, when she thinks it is time to begin something else.

27. Miss J.K. likes to give her children a chance to find out why one choice is better than another.

28. Miss A.Y. expects her children to find out what she wants, and what will please her.

29. Mr. X.Z. gives his class questions which can be answered only by looking them up in school books.

30. Miss [illegible].D. likes her children to deal with somethig on their own in order to really understand it.

31. Miss A.Q. is interested in her children's change of behavior after they have learned somethig.

32. Miss T.G. often says to her class, "Children, if you want to know how to get things done quickly, lthe best way is to memorize what you read, and to follow exactly what the book tells you to do."

33. Miss B.K. likes her children to be curious, and she encourages them to go ahead to find out what they don't know.

34. Miss K.X. often tells her children that if they don't study hard they will not get good grades or marks.

35. Miss B.E. likes to give her children a chance to discover their own mistakes.

36. Miss G.A. tells her children that she can make them all the kind of people that she wants them to be.

37. Miss A.C. tells her class that whatever they bring to school from outside must agree with what the textbook says.

38. Miss A.T. likes her children to work on theings in school which they find interesting outside of school.

39. Miss R.H. usually says to her class, "Children, you will never know whether an idea is good or bad until you have tried it."

40. Miss B.G. is much interested in her children's questions and asks them to find out what they know and what they do not know about these questions.

41. Miss P.V. tells her children to try to use everyday things in ways they have not used them before.

42. Mrs. S.F. asks John a question in class, but John does not know the answer. She quickly asks Mary, and Mary doesn't know the answer either. Then she continues to ask many others in class until she gets the right answer.

43. Miss P.M. likes her children to help decidewhen a question has been answered as best as can be.

44. Miss A.A. likes her children to play with ltheir own ideas so that they can come to their own discovery at the end.

Appendix VII

Pilot Study

Name of the school where you attened last Spring ____________________

____

The grade you were in last Spring ______________________________

Name ______________________________ Age ____________________

Your home address ____

____

What do your parents do?

Father ____________________________________

Mother ____________________________________

Pupil Situational Inventory

	YES	yes	no	NO
1. Mrs. U.P. wants her children to do something to a thing, land then see what happens. Would you like a teacher like her?				
2. Miss P.B. often asks her children to make guesses and try them out. Would you like a teacher like her?				
3. Miss G.T. shows her children the quickest way to solve a problem and then she expects them to do it exactly that way. Would you like a teacher like her?				
4. Miss B.P. is only interested in giving her children facts and information. Would you like a teacher like her?				
5. Miss J.T. lets her children move about freely only in the gym or on the playground. Would you like a teacher like her?				
6. Mrs. B.A. tells her class that what is good and what is bad should not be questioned. Would you like a teacher like her?				
7. Miss A.D. wants her children to discuss those things that she has planned for them to discuss. Would you like a teacher like her?				

	YES	yes	no	NO
8. Miss P.A. likes her children to try to make suggestions about how to solve the problems they are working on. Would you like a teacher like her?				
9. Mr. Q.H. told his class to study chapter five of their social studies book and then to answer all questions at the end of the chapter. Would you like a teacher like him?				
10. Mrs. K.I. is interested in giving her children a wide choice in how they answer questions. Would you like a teacher like her?				
11. Mr. A.E. is interested in giving his children something to do, not something to remember. Would you like a teacher like him?				
12. Miss R.P. gave his children a problem to work on, and told them when they are finished, their answers should be exactly like the one that he had in mind. Would you like a teacher like him?				
13. Miss Q.D. usually tells all her children to work on the same page of the same book at the same time. Would you like a teacher like her?				
14. Miss A.P. says to her children that they should never question what is right and what is wrong. Would you like a teacher like her?				

	YES	yes	no	NO
15. Miss Q.E. lets her children move about the classroom to discuss their study problems. Would you like a teacher like her?				
16. Miss A.V. likes her children to repeat after her and do things in exactly the same way as she does. Would you like a teacher like her?				
17. Miss B.H. tells her children that they are in school to obey and to accept what she says without asking questions. Would you like a teache like her?				
18. Miss D.B. is interested in telling her children exactly what to do and where to start. Would you like a teacher like her?				
19. Mrs. E.W. likes to tell her class that there are usually many different ways to answer the same question. Would you like a teacher like her?				
20. Miss A.F. is interested in seeing her children active and doing something with their hands and bodies as well as their minds. Would you like a teacher like her?				
21. Miss H.B. tells her children that she likes them to use thesame way to do the same thing all the time. Would you like a teacher like her?				
22. Miss C.P. does not care whether or not the facts and information she gives children will change their way of doing things. Would you like a teacher like her?				

	YES	yes	no	NO	
23. Miss P.D. often says to her children, "If you try your own ideas, you might get into trouble." Would you like a teacher like her?					
24. Miss F.K. wants her children to do only those things that she asks them to do in school. Would you like a teacher like her?					
25. Miss A.K. often says to her class, "You must do exactly what I tell you to do. Then you will not make any mistake." Would you like a teacher like her?					
26. Miss K.U. follows her class timetable very strictly and often tells her children to stop discussing one topic right away, lwhen she thinks it is time to begin something else. Would you like a teacher like her?					
27. Miss J.K. likes to give her children a chance to find out why one choice is better than another. Would you like a teacher like her?					
28. Miss A.Y. Expects her children to find ou find out what she wants, and what will please her. Would you like a teacherlike her?					
29. Mr. X.Z. gives his class questions which can be answered only by looking them up in school books. Would you like a teacher like him?					
30. Miss B.D. likes her children to deal with something on their own in order to really understand it. Would you like a teacher like her?					

	YES	yes	no	NO	
31. Miss A.Q. is interested in her children's change of behavior after they have learned something. Would you like a teacher like her?					
32. Miss T.G. often says to her class, "Children, if you want to know how to get things done quickly, the best way is to memorize what you read, and to follow exactly what the book tells you to do." Would you like a teacher like her?					
33. Miss B.K. likes her children to be curious, and she encourages them to go ahead to find out what they don't know. Would you like a teacher like her?					
34. Miss K.X. often tells her children that if they don't study hard they will not get good grades or marks. Would you like a teacher like her?					
35. Miss B.E. likes to give her children a chance to discover their own mistakes. Would you like a teacher like her?					
36. Miss G.A. tells her children that she can make them all the kind of people that she wants them to be. Would you like a teacher like her?					
37. Miss A.C. tells her class that whatever they bring to school from outside must agree with whatthe textbook says. Would you like a teacher like her?					

	YES	yes	no	NO	
38. Miss A.R. likes her children to work on things in school which they find interesting outside of school. Would you like a teacher like her?					
39. Miss R.H. usually says to her class, "Childfen, you will never know whether an idea is good or bad until you have tried it." Would you like a teacher like her?					
40. Miss B.G. is much interested in her children's questons and asks them to find out what they know and what they do not know about these questions. Would you like a teacher like her?					
41. Miss P.V. tells her children to try to use everyday things in ways they have not used them before. Would you like a teacher like her?					
42. Mrs. S.F. asks John a question in class, but John does not know the answer. She quickly asks Mary, and Mary doesn't know the dnswer either. Then she continues to ask many others in class until she gets the right answer. Would you like a teacher like her?					
43. Miss P.M. likes her children to help decide when a question has been answered as best as can be. Would you like a teacher like her?					
44. Miss A.A. likes her children to play with their own ideas so that they can come to their own discovery at the end. Would you like a teacher like her?					

APPENDIX VIII

Children, we are going to play a kind of game. How many of you would like to play games? Please let me see your hands. (Pause) This game might be slightly different. It is about the kinds of teachers whom you would like to have, or the kinds of teachers whom you would not like to have. I am from the University of Wisconsin, Madison, Wisconsin. I don't know your teacher, nor does your teacher know me. Please tell me the kinds of teachers you would like to have, and the kinds of teachers that you would not like to have. This is NOT a test. Please take your time.

Explanation for the rating continuum

YES: I like this kind of teacher very much.
yes: I like this kind of teacher a little.
no : I don't like this kind of teacher.
NO : I don't like this kind of teacher at all.

APPENDIX IX

A SET OF WEIGHTS ASSIGNED BY THE RAVE PROCEDURE FOR AN ITEM ANALYSIS IN THE PILOT STUDY

Item No.	RAVE weights	Item No.	RAVE weights
1	3 2 2 3 (+)[*]	23	3 2 2 4 (-)
2	3 2 2 3 (+)	24	3 2 2 4 (-)
3	3 2 3 2 (-)[#]	25	3 2 2 3 (-)
4	3 2 2 3 (-)	26	3 2 2 4 (-)
5	3 2 2 3 (-)	27	3 2 2 3 (+)
6	3 2 2 3 (-)	28	3 2 2 4 (-)
7	3 2 2 3 (-)	29	3 2 2 3 (-)
8	3 2 2 3 (+)	30	3 2 2 3 (+)
9	3 2 2 3 (-)	31	3 2 2 3 (+)
10	3 2 2 3 (+)	32	3 2 2 3 (-)
11	3 2 2 3 (+)	33	3 2 2 3 (+)
12	3 2 2 3 (-)	34	3 2 2 3 (-)
13	3 2 2 4 (-)	35	2 2 2 3 (+)
14	3 2 2 3 (-)	36	3 2 2 3 (-)
15	3 2 2 3 (+)	37	3 2 2 3 (-)
16	3 2 2 3 (-)	38	3 2 2 3 (+)
17	3 2 2 3 (-)	39	0 2 2 3 (+)
18	3 2 2 3 (-)	40	3 2 2 3 (+)
19	3 2 2 3 (+)	41	3 2 2 3 (+)
20	0 2 2 3 (+)	42	3 2 2 3 (-)
21	3 2 2 3 (-)	43	3 3 2 3 (+)
22	3 2 2 3 (-)	44	3 2 2 3 (+)

---

[*] (+) means a positive item.

[#] (-) means a negative item, the weights of which were reversed.

APPENDIX X

RESULTS OF THE GITAP[*] PROCEDURE BY INCORPORATING RAVE WEIGHTS FOR AN ITEM ANALYSIS IN THE PILOT STUDY

Item No.	Choice	No. of S's Responses	r[@]	Item No.	Choice	No. of S's Responses	R
1	1	5	.28	8	1	4	.29
1	2	15	-.12	8	2	8	-.10
1	3	39	-.43	8	3	26	-.54
1	4	23	.50	8	4	44	.46
2[#]	1	9	.16	9[#]	1	18	.41
2	2	19	-.33	9	2	29	-.31
2	3	39	-.17	9	3	19	-.30
2	4	15	.53	9	4	16	.31
3[#]	1	13	-.11	10[#]	1	6	.17
3	2	14	.16	10	2	15	-.30
3	3	26	-.34	10	3	30	-.40
3	4	29	.30	10	4	31	.49
4[#]	1	16	.48	11[#]	1	19	.26
4	2	22	-.35	11	2	18	-.42
4	3	20	-.28	11	3	16	-.29
4	4	24	.20	11	4	29	.34
5[#]	1	15	.35	12[#]	1	16	.36
5	2	19	-.30	12	2	20	-.39
5	3	23	-.30	12	3	25	-.16
5	4	25	.13	12	4	21	.27

---

[*] F.B. Baker, op. cit., "Generalized Item And Test Analysis."

[@] biserial correlation coefficients.

[#] Items were selected for the final form of the Pupil Situational Inventory.

Item No.	Choice	No. of *S*'s Responses	R	Item No.	Choice	No. of *S*'s Responses	R
6	1	15	.42	13	1	6	.67
6ø	2	20	-.26	13ø	2	15	-.29
6	3	22	-.39	13	3	24	-.53
6	4	25	.29	13	4	37	.42
7	1	27	.32	14ø	1	11	.11
7	2	31	-.22	14	2	14	-.26
7	3	13	-.29	14	3	25	-.48
7	4	11	.18	14	4	32	.55
15	1	13	.06	24	1	9	.69
15	2	14	-.45	24ø	2	21	-.43
15	3	18	-.18	24	3	24	-.45
15	4	37	.40	24	4	28	.45
16	1	5	.39	25	1	17	.34
16	2	13	-.11	25ø	2	21	-.47
16	3	24	-.43	25	3	21	-.34
16	4	40	.32	25	4	23	.49
17	1	9	.47	26	1	7	.70
17	2	20	-.23	26	2	14	-.39
17	3	22	-.45	26	3	15	-.45
17ø	4	31	.35	26	4	46	.28
18	1	30	.53	27	1	2	.04
18	2	32	-.38	27	2	6	-.16
18	3	14	-.28	27	3	32	-.64
18	4	6	.15	27	4	43	.67
19	1	1	.19	28	1	6	.73
19	2	11	-.33	28ø	2	18	-.22
19	3	28	-.59	28	3	30	-.43
19	4	42	.70	28	4	28	.32
20	1	0	0	29ø	1	16	.24
20	2	7	-.23	29	2	15	-.34
20	3	25	-.48	29	3	26	-.48
20	4	50	.53	29	4	25	.55

Item No.	Choice	No. of S's Responses	R	Item No.	Choice	No. of S's Responses	R
21	1	4	.22	30	1	5	.06
21	2	15	-.38	30	2	11	-.24
21	3	25	-.47	30	3	31	-.40
21	4	38	.61	30	4	35	.51
22	1	9	.26	31#	1	9	.21
22	2	16	-.32	31	2	20	-.28
22	3	26	-.47	31	3	29	-.50
22	4	31	.55	31	4	24	.67
23	1	9	.78	32	1	23	.52
23	2	19	-.38	32#	2	22	-.63
23	3	24	-.29	32	3	20	-.27
23	4	30	.18	32	4	17	.40
33	1	2	.04	39	1	0	0
33	2	13	-.22	39	2	9	-.15
33	3	27	-.44	39	3	33	-.54
33	4	40	.53	39	4	40	.39
34#	1	28	.50	40#	1	3	.16
34	2	31	-.51	40	2	16	-.23
34	3	14	-.11	40	3	33	-.57
34	4	9	.23	40	4	28	.72
35	1	4	-.05	41	1	7	.19
35	2	5	-.31	41	2	18	-.16
35	3	29	-.50	41	3	33	-.41
35	4	44	.58	41	4	24	.52
36#	1	15	.53	42#	1	14	.25
36	2	16	-.34	42	2	18	-.30
36	3	20	-.47	42	3	29	-.43
36	4	31	.26	42	4	30	.43
37#	1	10	.31	43	1	4	.22
37	2	16	-.16	43	2	10	.12
37	3	25	-.51	43	3	39	-.48
37	4	31	.41	43	4	29	.58
38	1	1	.08	44#	1	7	.25
38	2	12	-.49	44	2	8	-.24
38	3	28	-.36	44	3	35	-.55
38	4	41	.60	44	4	32	.57

APPENDIX XI

FORM A - W.S.U. - FL-FX-O

Total Adminsitration time: 30 minutes
(stop watch needed)

CREATIVE THINKING

Please print:

NAME ______________________________ PRESENT AGE ____ SEX _____
Last First Middle

SCHOOL ______________________________ DATE ____________________

GRADE ________________________ TEACHER ________________________

Adminsitrator reads aloud:

The tests you are about to take are tests of imagination. The purpose of these tests is to find out how well you can think of interesting ideas. These tests are different from most other tests you have taken in school. Instead of one answer being right, many different answers may be right.

We will read the directions for each test together. I cannot answer questions after we read the directions, because your questions might give away too much information. If you are not sure of an answer that you are thinking of, put it down anyway. It will not count against your score if it is wrong. Spelling mistakes will not be counted against you either, as long as your writing can be read.

Test 3: PENCIL USES

List as many uses as you can think of for one or more pencils. (Remember to list uses and not improvements.) You will have only three minutes.

1. ______________________________
2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________
6. ______________________________
7. ______________________________
8. ______________________________
9. ______________________________
10. ______________________________
11. ______________________________
12. ______________________________
13. ______________________________
14. ______________________________
15. ______________________________
16. ______________________________
17. ______________________________
18. ______________________________
19. ______________________________
20. ______________________________

STOP! DO NOT TURN THE PAGE

Test 5: BROOM USES

List as many uses as you can think of for one or more brooms. You will have only three minutes.

1. ____
2. ____
3. ____
4. ____
5. ____
6. ____
7. ____
8. ____
9. ____
10. ____
11. ____
12. ____
13. ____
14. ____
15. ____
16. ____
17. ____
18. ____
19. ____
20. ____

STOP. DO NOT TURN THE PAGE.

Test 10: TABLE KNIFE USES

List as many uses as you can think of for one or more table knives. In this test try to list many different kinds of uses. For example, besides listing cutting uses, also list other kinds of uses. (Remember to list uses and not improvements.)

Take your time. Don't hurry. You will have a full five minutes.

1. ____________________
2. ____________________
3. ____________________
4. ____________________
5. ____________________
6. ____________________
7. ____________________
8. ____________________
9. ____________________
10. ____________________
11. ____________________
12. ____________________
13. ____________________
14. ____________________
15. ____________________
16. ____________________
17. ____________________
18. ____________________
19. ____________________
20. ____________________

STOP. DO NOT TURN THE PAGE.

Test 11: NEEDLE USES

List as many uses as you can think of for one or more needles. In this test try to list many different kinds of uses.

Take your time. Don't hurry. You will have a full five minutes.

1. ____________________
2. ____________________
3. ____________________
4. ____________________
5. ____________________
6. ____________________
7. ____________________
8. ____________________
9. ____________________
10. ____________________
11. ____________________
12. ____________________
13. ____________________
14. ____________________
15. ____________________
16. ____________________
17. ____________________
18. ____________________
19. ____________________
20. ____________________

STOP. DO NOT GO BACK TO ANY OF THE TESTS.

APPENDIX XII

CREATIVE THINKING

Scoring guide for tests 3, 5, 10, and 11 Alternate Uses.

Fluency socres: Tests 3 and 5 only; no judgement -- just count responses.

Flexibility scores: (a) Score no point for any vague responses which can be placed in a "usual use" category.
(b) Score no point for an impossible use.
(c) Score no more than two points for an action verb repeated within a single test.
(d) Score no point for any response which is not an actual use, e.g. a preparation for use, such as "threading"; an action which is only related to the object, such as "something to forget"; dispensation after use, such as, "sticking needle in pin cushion."

Test 3: Score only one point for marking with the lead (writing, drawing, etc.,) only one point for erasing, and an additional point for each use other than marking or erasing.

Test 5: Score only one point for sweeping (floors, sidewalks, etc.,) and an additional point for each use other than sweeping.

Test 10: Score only one point for cutting food, only one point for spreading food, land an additional point for each use other than cutting or spreading food.

Test 11? Score only one point for sewing cloth and an additional point for each use other than sewing cloth.

Be sure to follow rules a, b, c, land d when scoring tests 3, 5, 10, and 11.

APPENDIX XIII

CHILD REPORT: SCHOOL ATTITUDE SCALE

Instructions: Will you please put a mark in the space that tells best how you feel.

		YES	yes	no	NO	
1. I enjoy most of the things I do in school.	Do you feel like this?					
2. I don't like some of the things we study in school.	Do you feel like this ?					
3. I like to work hard in school.	Do you feel like this?					
4. I would like to move to another classroom if I could.	Do you feel like this?					
5. It is fun to learn the things we study in school.	Do you feel like this?					
6. I am glad to be in this school.	Do you feel like this?					
7. Sometimes I feel like staying away from school.	Do you feel like this?					
8. Everything we do in school is interesting to me.	Do you feel like this?					
9. I think school is a waste of time.	Do you feel like this?					
10. Learning is just a lot of hard work.	Do you feel like this?					
11. I don't like all the hard work we have in school.	Do you feel like this?					
12. Learning new things is a lot like a game.	Do you feel like this?					

APPENDIX IVX

CHILD REPORT: PEER CHOICE RATING

Sociometric Card Sort Directions

I. Introduction: "I would like to find out which children in your room you like to play with. I have some cards with the NAMES of of the children in your room on them. We are going to sort these NAMES so that you can tell me whether you like to play with these children or not."

II. Sort 1: "If you like to play with these children whose NAMES you see, place them on top of the BIG YES envelope. If you don't like to play with these children whose NAMES you see, place them on top of the BIG NO envelope." (The BIG YES envelope should be on the left, and the BIG NO on the right.) "Now move the BIG NO envelope way up in the corner of your desk away from you."

III. Sort 2: "Now you have a BIG YES and a LITTLE YES envelope. Now these are the NAMES of the children you said you like to play with. Maybe there are some of the children in this group that you especially like to play with, or that you like to play with more. I want you to look at these NAMES again. For the children you especially like to play with, place them on the top of the BIG YES envelope, and for others place them on top of the LITTLE YES envelope. Look at them one at a time and then place them on the BIG YES pile -- especiolly like kto play with -- or on the LITTLE YES pile -- like to play with. Place all of the NAMES in the two envelopes." (When this sort is finished, turn in the three envelopes.)

APPENDIX XV

BOB Clearance # 51-6440

PUPIL SITUATIONAL INVENTORY

	YES	yes	no	NO
1. Miss P.B. often asks her children to make guesses and try them out. Would you like a teacher like her?				
2. Miss B.Y. shows her children the quickest way to solve a problem and then she expects them to do it exactly that way. Would you like a teacher like her?				
3. Miss B.P. is only interested in giving her children facts and information. Would you like a teacher like her?				
4. Miss J.T. lets her children move about freely only in the gym or on the playground. Would you like a teacher like her?				
5. Mrs. B.A. told his class that what is good and what is bad should not be questioned. Would you like a teacher like her?				
6. Mr. Q.N. told his class to study chapter five of their social stuides book and then to answer all questions at the end of the chapter. Would you like a teacher like her?				
7. Mrs. K.I. is interested in giving her children a wide choice in how they answer questions. Would you like a teacher like her?				

	YES	yes	no	NO	
8. Mr. A.X. is interested in giving his children somethig to do, not something to remember. Would you like a teacher like him?					
9. Miss R.P. usually tells her all children to work on the same page of the same book at the same time. Would you like a teacher likeher?					
10. Mr. Q.D. gave his children a problem to work on, and told them when they were finished, their answers should be exactly like the one that he had in mind. Would you like a teacher like him?					
11. Miss A.P. says to her bhildren that they should never question what is right and what is wrong. Would you like a teacher likerher?					
12. Miss A.Y. expects her children to find out what she wants, and what will please her. Would you like a teacher like her?					
13. Miss B.H. tells her children that they are inschool to obey and to accept what she says without asking questons. Would you like a teacher like her?					
14. Miss C.P. does not care whether or not the facts and information she gives her children will change their way of doing things. Would you like a teacher like her?					
15. Miss F.K. wants her children to do only those things that she asks them to do in school. Would you like a teacher like her?					

	YES	yes	no	NO
16. Miss A.K. often says to her class, "You must do exactly what I tell you to do. Then you will not make any mistake." Would you like a teacher like her?				
17. Mr. K.Z. gives his class questions which can be answered only by looking them up in school books. Would you like a teacher like him?				
18. Miss B.G. is much interested in her children's questions and asks them to find out what they know and what they do not know about these questions. Would you like a teacher like her?				
19. Miss A.Q. is interested in her children's change of behavior after they have learned somethig. Would you like a teacher like her?				
20. Miss T.G. often says to her class, "Children, if you want to know how to get things done quickly, the best way is to memorize what you read, and to follow exactly what the book tells you to do." Would you like a teacher like her?				
21. Miss K.X. often tells her children that if they don't study hard they will not get good grades or marks. Would you like a teacher like her?				
22. Miss G.A. tells her children that she can make them all the kind of people that she wants them to be. Would you like a teacher like her?				

	YES	yes	no	NO
23. Miss A.C. tells her class that whatever they bring to school from outside must agree with what the textbook says. Would you like a teacher like her?				
24. Mrs. S.P. asks John a question in class, but John does not know the answer. She quickly asks Mary, and Mary doesn't know the answer either. The she continues to ask many others in class until she gets the right answer. Would you like a teacherllike her?				
25. Miss A.A. likes her children to play with their own ideas so that they can come to their own discovery at the end. Would you like a teacher like her?				

APPENDIX XVI

BOB Clearance # 51-6440

PUPIL SITUATIONAL INVENTORY

	YES	yes	no	NO
1. Miss P.B. often asks her children to make guesses and try them out. Would you like a teacher like her?				
Is your teacher like her?				
2. Miss B.Y. shows her children the quickest way to solve a problem and then she expects them to do it exactly that way. Would you like a teacher like her?				
Is your teacher like her?				
3. Miss D.P. is only interested in giving her children facts and information. Would you like a teacher like her?				
Is your teacher like her?				
4. Miss J.T. lets her children move about freely only in the gym or on the playground. Would you like a teacher like her?				
Is your teacher like her?				
5. Mrs. B.A. tells her class that what is good and what is bad should not be questioned. Would you like a teacher like her?				
Is your teacher like her?				

	YES	yes	no	NO
6. Mr. Q.N. told his class to study chapter five of their social studies book and then to answer all questions at the end of the chapter. Would you like a teacher like him?				
Is your teacher like him?				
7. Mrs. K.I. is interested in giving her children a wide choice in how they answer questions. Would you like a teacher like her?				
Is your teacher like her?				
8. Mr. A.X. is interested in giving his children something to do, not something to remember. Would you like a teacher like him?				
Is your teacher like him?				
9. Miss R.P. usually tells all her children to work on the same page of the same book at the same time. Would you like a teacher like her?				
Is your teacher like her?				
10. Mr. Q.D. gave his children a problem to work on, and told them when they were finished, their answers should be exactly like the one that he had in mind. Would you like a teacher like him?				
Is your teacher like him?				

	YES	yes	no	NO
11. Miss A.P. says to her children that they should never question what is right and what is wrong. Would you like a teacher like her?				
Is your teacher like her?				
12. Miss A.Y. expects her children to dind out what she wants, and what will please her. Would you like a teacher like her?				
Is your teacher like her?				
13. Miss B.H. tells her children that they are in school to obey and to accept what she says without asking questions. Would you like a teacher like her?				
Is your teacher like her?				
14. Miss C.P. does not care whether or not the facts and information she gives her children will change their way of doing things. Would you like a teacher like her?				
Is your teahher like her?				
15. Miss F.K. wants her children to do only those things that she asks them to do in school. Would you like a teacher like her?				
Is your teacher like her?				

	YES	yes	no	NO
16. Miss A.K. often says to her class, "You must do exactly what I tell you to do. Then you will not make any mistake." Would you like a teacher like her?				
Is your teacher like her?				
17. Mr. X.Z. gives his class questions which can be answered only by looking them up in school books. Would you like a teacher like her?				
Is your teacher like him?				
18. Miss B.G. is much interested in her e children's questions and asks them to find out what they know and what they do not know about these questions. Would you like a teacher like her?				
Is your teacher like her?				
19. Miss A.Q. is interested in her children's change of behavior after they have learned something. Would you like a teacher like her?				
Is your teacher like her?				
20. Miss T.G. often says to her class, "Children, if you want to know how to get things done quickly, the best waysis to memorise what you read, and to follow exactly what the book tells you to do." Would you like a teacher like her?				
Is your teacher like her?				

	YES	yes	no	NO	
21. Miss K.X. often tells her children that if they don't study hard they will not get good grades or marks. Would yourlike a teacher like her?					
Is your teacher like her?					
22. Miss G.A. tells her children that she can make them all the kind of people that she wants them to be. Would you like a teacher like her?					
Is your teacher like her?					
23. Miss A.C. tells her class that whatever they bring to school from outside must agree with what the textbook says. Would you like a teacher like her?					
Ilâ your teacher like her?					
24. Mrs. S.F. asks John a question in class, but John does not know the answer. She quicky asks Mary, and Mary doesn't know the answer either. Then she continues to ask many others in class until she gets the right answer. Would you like a teacher like her?					
Is your teacher like her?					
25. Miss A.A. likes her children to play with their own ideas so that they can come to their own discovery at the end. Would you like a teacher like her?					
Is your teacher like her?					

APPENDIX XVII

Name of the school system ______________________________

Name of the school ______________________________

Grade __________ Name of the Teacher ______________________

The following items of information are required:

1. A general idea about children's socioeconomic class or parental occupation

   a. Homogeneous ________. Please indicate the general socio-economic class, e.g. lower-middle.

   ____

   b. Heterogeneous ________. Please indicate the general socio-economic classes.

   ____

2. Race/races of children in class

   a. Homogeneous ________. Please indicate mainly (e.g. White)

   ____

   b. Heterogeneous ________. Please indicate races and the No. of children involved, (e.g. White --10, Negro --5)

   ____

   ____

3. Any child/children whose native language is not English?

   a. No ________

   b. Yes ________. Please indicate the No. of children involved ______________________

4. Any physically handicapped child/children?

   a. No ______________

   b. Yes __________ No. of child/children involved ________

5. Any mentally retarded child/children?

a. No ________

b. Yes ______ No. of child/children involved __________

6. Do all children in class come from roughly the same neighborhood?

a. Yes __________

b. No _________. Please indicate the location and the No. of child/children involved (e.g. two boys coming about two or more miles further than the rest of the children in class.) ____

____

____

7. An approximate range of children's age in class ____________

____

8. Any newcomer(s) within the past sixty days?

a. No ________

b. Yes ________. No. of child/children involved ___________

9. An approximate range of children's I.Q. __________________

Where do most children's I.Q.s fall or what is the approximate average of their I.Q.s? ______________________________

____

10. No. of boys in class ______________________________

No. of girls in class ______________________________

APPENDIX XVIII

SOCIOMATRIX FOR ____________ ____________ ____________

Grade School Teacher

CODE: 3= Especially like to play with
2= Like to play with
1= Those not included in 2 or 3

CHOICES GIVEN

CHOICES RECEIVED

	1	2	3	4	5	....	30	TOTAL
1								
2								
3								
4								
5								
⋮								
30								

APPENDIX XIX

I Experimental* attitude on Pre-test	II Teacher Perception on Post-test	II - I Difference
68	66	-2
71	77	6
63	74	11
68	70	2
64	66	2
69	72	3
67	73	6
66	74	8
66	71	5
70	75	5
63	62	-1
60	66	6
68	70	2
66	64	-2
67	67	0
64	66	2

---

*obtained by pupils' indications of the kind s of teachers thgy would like to have.

APPENDIX XX

I Experimental[*] Attitude on Post-test	II Teacher Perception on Post-test	I - II Difference
70	66	4
81	77	4
71	74	-3
71	70	1
69	66	3
71	72	-1
74	73	1
75	74	1
73	71	2
76	75	1
63	62	1
62	66	-4
74	70	4
68	64	4
71	67	4
67	66	1

---

[*] obtained by pupils' indications of the kinds of teachers they would like to have.

*